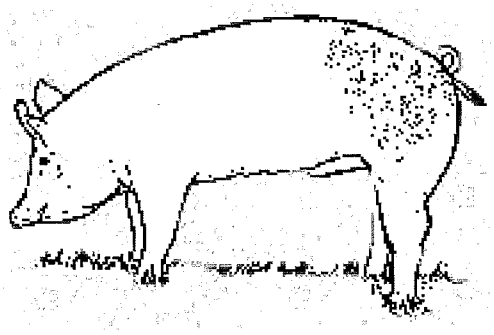
Comprehensive Nutrient Management Plan

for

(b) (6) Pork Farm

Breese Location



(b) (6)

19722 Low Bridge Road
Breese IL, 62230

Section 14 of Township 3 North Range 4 West in Clinton County Illinois
38°42'30.02"N 89°30'11.95"W

This farm is a swine finishing farm approximately 4,880 head of swine finisher animals.

Plan Period 2012 – 2017

PREPARED BY:

Frank & West
Environmental Engineers, Inc.
7226 N. State Route 29 • Springfield, IL 62707-7616 • Phone: 217/487-7686 • Fax: 217/487-7687

Comprehensive Nutrient Management Plan

Warranty of Technical Services Provided

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity document for information about day-to-day management activities and recordkeeping. Both this document and the Producer Activity document shall remain in the possession of the producer/landowner.

Farm contact information: (b) (6) **Pork Farm Breese Location**
(b) (6)
19722 Low Bridge Road
Breese, IL 62230
217-246-5413

Latitude/Longitude: **38°42'30.02"N 89°30'11.95"W**

Plan Period **2012-2017**

Conservation Planner

As a Conservation Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Nutrient Management Activities* documents for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: _____ Date: 3-28-13
Name: Wade E Meteer Jr.
Title: Agricultural Scientist Certification Credentials: TSP # 08-5938

County NRCS Office

The County NRCS office has reviewed the CNMP documents and concurs that the plan meets the NRCS standards and specifications.

Signature: N/A Date: _____
Name:
Title:

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: _____ Date: _____
Name:

Section 2. Manure and Wastewater Handling and Storage

Signature: C.L. West Date: 3-28-13
Name: Chris West P.E.
Title: President Certification Credentials: TSP # 04-4217

Sections 4. Land Treatment

Signature: Wade E Meteer Jr. Date: 3-28-13
Name: Wade E Meteer Jr.
Title: Agricultural Scientist Certification Credentials: TSP # 08-5938

Section 6. Nutrient Management

The Nutrient Management component of this plan meets the Illinois Nutrient Management 590 and Waste Utilization 633 Conservation Practice Standards.

Signature: Wade E Meteer Jr. Date: 3-28-13
Name: Wade E Meteer Jr.
Title: Agricultural Scientist Certification Credentials: TSP # 08-5938

Section 7. Feed Management (if applicable)

Signature: N/A Date:
Name: Wade E Meteer Jr.
Title: Agricultural Scientist Certification Credentials: TSP # 08-5938

Section 8. Other Utilization Options (if applicable)

Signature: N/A Date:
Name: Wade E Meteer Jr.
Title: Agricultural Scientist Certification Credentials: TSP # 08-5938

Comprehensive Nutrient Management Plan

Table of Contents

Commercial Nitrogen Fertilizer Management.

A bushel of corn contains approximately 0.8 lbs of nitrogen (N), thus a 200-bushel corn crop removes about 160 pounds of N from the field[1]. For those corn acres not receiving manure applications it is necessary to apply commercial nitrogen to meet the nitrogen demand of the planted crop. Until recently the guideline in Illinois was to apply 1.2 pounds of nitrogen per bushel of expected yield. Recent research has indicated that modern hybrids grown in Illinois Soils may not need as much N as previous recommendations have suggested.

The new approach recommended in the most current version of the Illinois agronomy handbook takes into consideration the value of Corn and the return to investment of additional N fertilizer. The Maximum Return to N (MRTN) is the point in which the yield increase for adding additional N just pays for the N added. Further Reading regarding the MRTN approach can be found in the Managing Nitrogen Section of the Illinois Agronomy Handbook.

The MRTN approach was a result of collaborative efforts between several Midwestern universities. Iowa State University hosts a website where N rate guidelines can be calculated using this approach. The website can be found at:

http://extension.agron.iastate.edu/soilfertility/nrate.aspx

The Illinois Agronomy Handbook describes the output of the MRTN Corn Nitrogen Rate Calculator as a guideline to N application rate. These guidelines are intended to be used as a decision aid rather than a fixed recommendation. However Illinois Agronomy Handbook strongly recommends that the new method be used for calculating N rates and that the Yield based N recommendations system no longer be used.

The N rate calculator was designed based on current N and corn prices. If N prices drop and corn prices rise so that the ratio drops to 0.05 or less (cost of N/Price of Corn), calculated N rates could be very high. The N rate calculator has built in limits and will not calculate N rates above 240 lbs per acre. In order to reach this limit corn would have to be $8 per bushel and N would have to cost less than 25 cents per pound.

It is recommended that when using manure, sewage sludge, or other N sources that usually cost less per pound of N than commercial fertilizers that a conservative approach to assigning value to those products be used. One such approach is to price the pounds of crop-available N the same as would be for a pound of N from a commercial fertilizer source. Available N from manure sources can vary and it is recommended that actual manure analysis be used to determine N available.

[1] Illinois Agronomy Handbook, 24th Edition.

How to Use the Calculator[2]

- Choose if you want to calculate for one set of prices or multiple prices (price ratio of N and corn).
- Choose which state you are interested in, or the region of a state or the soil yield potential grouping.
- Choose the rotation, either corn following soybean or corn following corn.
- Check if you want to include non N responsive sites (sites that had no yield increase to N application).
- Choose the N fertilizer product and price, and corn grain price. If you use the multiple price ratio option, then you can choose four prices for N and corn grain (four ratios). The prices for N and corn have default values already entered. You may enter either the product cost ($/ton) or unit cost ($/lb N).
- Hit the calculate button to run the calculations. This will take you to the results section. If you choose N or corn prices that are too high or low, you may get an error message in the results section. If that happens, please try another set of prices.

State Information

- **Illinois Geographic Region** – Sites for Illinois are grouped by geographic location in the state: North, Central, and South. Northern Illinois runs from the Wisconsin border and includes those counties through which Interstate Route 80 runs. Southern Illinois includes the counties through which Interstate Route 70 runs, and the southern parts of counties (Shelby, Montgomery, Macoupin) north of those where soils have lower organic matter. Central Illinois is the area in between, and might also be considered to include southern portions of large counties (Henry, Bureau, LaSalle) through which I-80 runs. When in doubt in "border" areas, assign higher organic-matter soils to the northern of two areas and lower OM soils to the more southern area.

[2] Taken from the Nitrogen Rate Calculator Website (http://extension.agron.iastate.edu/soilfertility/nrate.aspx)

Definitions

- **EONR** – Economic optimum N rate, the point where the last increment of N returns a yield increase large enough to pay for the additional N.
- **MRTN** – Maximum return to N, the N rate where the economic net return to N application is maximized.
- **Maximum Yield** –The yield where application of more N does not result in yield increase.
- **Net Return** – The value of corn grain produced minus the N fertilization cost.
- **Price Ratio** – The ratio of N fertilizer price to corn grain price ($/lb:$/bu).
- **Site** – The land area occupied by a N rate trial, either replicated small plots in a specific field area or replicated field-length strips.
- **Site N Responsiveness** – The corn grain yield increase with N application, non-responsive indicates no yield increase with N application while high response indicates large yield increase from N application.
- **Gross (Yield) Return** – The value of corn grain increase due to N application.

Calculated Values

The results of calculations are provided in a table and in up to four graphs. Also, the chosen input information that went into the calculations is displayed.

Displayed Input Information

- State.
- The number of N rate trials (sites) that fit the chosen criteria and used in the calculations.
- The rotation.
- An indication if non-responsive sites are included in the calculations.
- The N fertilizer and corn grain prices, and the price ratio(s).

Tables

Table 2. Example of results table using MRTN website

N Price ($/lb N):	**$0.34**	**$0.43**	**$0.52**	**$0.61**
Corn Price ($/bu):	**$4.50**	**$4.50**	**$4.50**	**$4.50**
Price Ratio:	**0.08**	**0.1**	**0.12**	**0.14**
RTN Rate (lb N/acre):	**180**	**170**	**161**	**154**
Profitable N Rate Range (lb N/acre):	165 - 196	156 - 185	148 - 175	141 - 166
Net Return to N at MRTN Rate ($/acre):	$301.01	$285.30	$270.43	$256.29
Percent of Maximum Yield at MRTN Rate:	99%	98%	98%	98%
UAN (28% N) at MRTN Rate (lb product/acre):	643	607	575	550
UAN (28% N) Cost at MRTN Rate ($/acre):	$61.20	$73.10	$83.72	$93.94

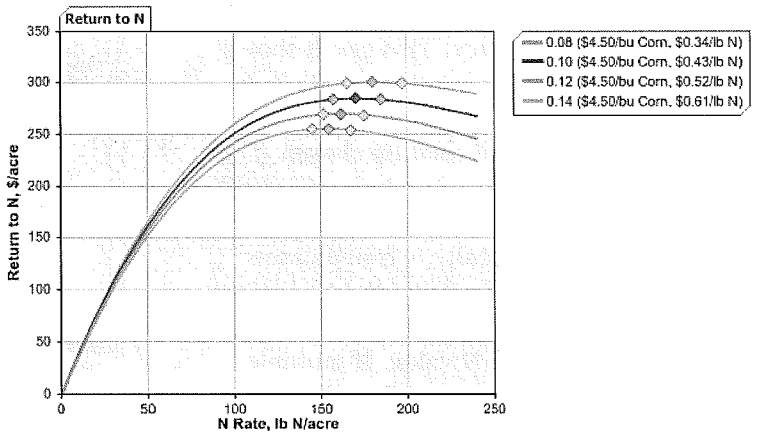
- **MRTN Rate (lb N/acre)**, is the N rate at the MRTN. For the data set, rotation, and price ratio(s), the MRTN rate would be the suggested rate to apply for maximizing net return to N application.
- **Profitable N Rate Range (lb N/acre)**, is the N rate values at a $1/acre net return range (LOW and HIGH) around the MRTN. An N rate within this range around the MRTN would provide similar expected economic return and could be considered the profitable N rate range.
- **Net return to N at MRTN Rate ($/acre)**, is the economic net return at the MRTN rate.
- **Percent of maximum yield** is the proportion of yield that might be produced at the MRTN rate and LOW/HIGH N rate range compared to the yield at the maximum response to N. It is not economical to attempt to apply N at a rate that would result in maximum yield or meet the N requirements of all sites (100% maximum yield), including the few most responsive sites. An economic rate will always result in less than 100% of maximum yield, that is, the MRTN rate will result in yield less than maximum. How far less than maximum depends on the price ratio of N and corn grain. For producers that are willing to tolerate more risk in their corn production system, then N application toward the LOW rate will have on average lower N input cost, but more frequently may supply N below maximum economic response. For producers with greater aversion to risk in their corn production system, then N application toward the HIGH rate will more frequently supply N that is at least adequate to meet corn N needs, but have on average greater N input cost and more frequently be above maximum economic response.

- **Nitrogen Product at MRTN Rate (lb product/acre),** is the amount of product at the MRTN rate.
- **Nitrogen Product Cost at MRTN Rate ($/acre),** is the cost of N at the MRTN rate.

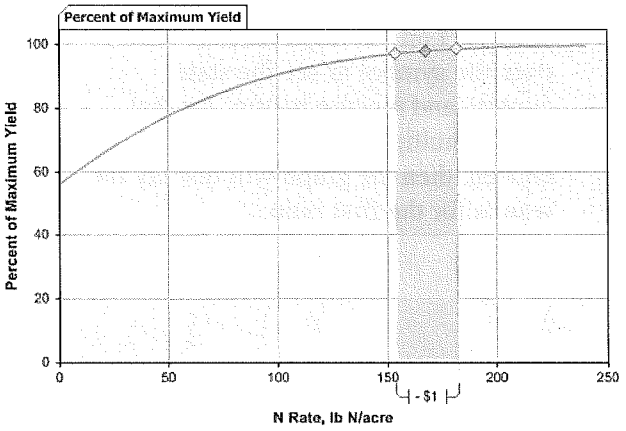
Charts

Four graphs are available for viewing. Each presents a different component of the economic rate calculations, and compliment results shown in the table.

- **Return to N.** This graph shows the two components for calculating net return across N rates; the gross return from yield increase and the fertilizer cost. The net economic return to N is the difference between these two values at each N rate. The point of maximum net return (MRTN, solid symbol) and the profitable N rate range (shaded symbol) within $1/acre of the maximum is shown on the graph. The N rate at the MRTN provides the greatest economic return to N application for the dataset, prices, and rotation chosen and would be the suggested N application rate. If multiple price ratios are chosen, then only net return to N is shown for each ratio.

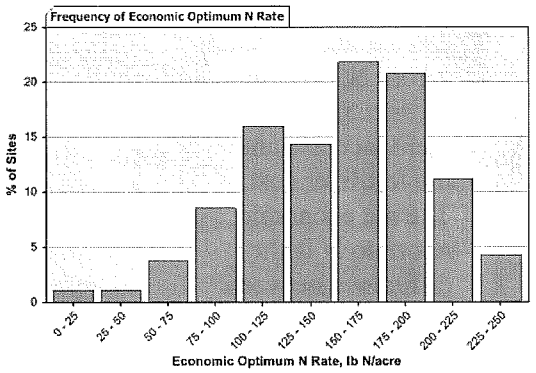


- **Percent of maximum yield.** This graph shows the percent of maximum yield across N rates for all sites in the dataset and rotation chosen. The N rate at the MRTN and the profitable N rate range (LOW - HIGH) within $1/acre of the MRTN are shown. As N rates move toward the LOW end of the range, the risk of having inadequate N increases and percent of maximum yield decreases, while as N rates move toward the HIGH end of

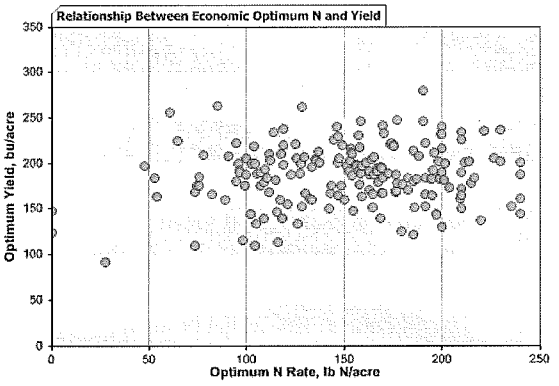


the range the risk of having inadequate N decreases and percent of maximum yield increases. The greater the N cost relative to corn grain price (the larger the price ratio), the lower the economic rate, the farther the MRTN rate moves down the N response curve, and the more yield will be below the maximum yield. This graph helps with decisions regarding choice of N rate in regard to risk management. Reducing risk of insufficient N (that is, using a higher N rate) does result in greater N input cost, which in the long run could reduce economic return to N use. If multiple price ratios are chosen, then the percent of maximum yield is shown for each ratio.

- **EONR Frequency.** This graph shows the frequency distribution, in 25 lb N increments, of the EONR for each site in the dataset and rotation chosen. The higher the bar for a N rate increment the more times sites had an EONR in that increment. Typically N trial datasets have a range of EONR values, with the most frequent range of EONR's being around the MRTN value. If multiple price ratios are chosen, then the frequency of EONR is shown for each ratio.



- **EONR vs. Yield.** This graph shows the relationship between the site EONR and yield at the EONR for each site in the dataset and rotation chosen. The number of symbols will match the number of sites in the dataset. You can scroll the cursor over the symbol to see the state, county, and manure history for that site. If multiple price ratios are chosen, then the graph will display the results for the first ratio.



Several scenarios have been run using the Nitrogen Rate calculator. These scenarios are provided in order to guide nitrogen applications on areas where manure is not applied. The following table is a summary of those scenarios.

Table 1. Summary of scenarios calculated using the MRTN rate calculation website.
All scenarios were calculated using a corn value of $4.50 per bushel

Crop Rotation	Fertilizer Type	Cost Per Ton
Corn following Soybeans	Anhydrous Ammonia (82%)	550-1000
Continuous Corn	Anhydrous Ammonia (82%)	550-1000
Corn following Soybeans	UAN (28%)	190-342
Continuous Corn	UAN (28%)	190-342

Producers are encouraged to use the online version of the Nitrogen Rate Calculator to fine tune Nitrogen Application Rates.

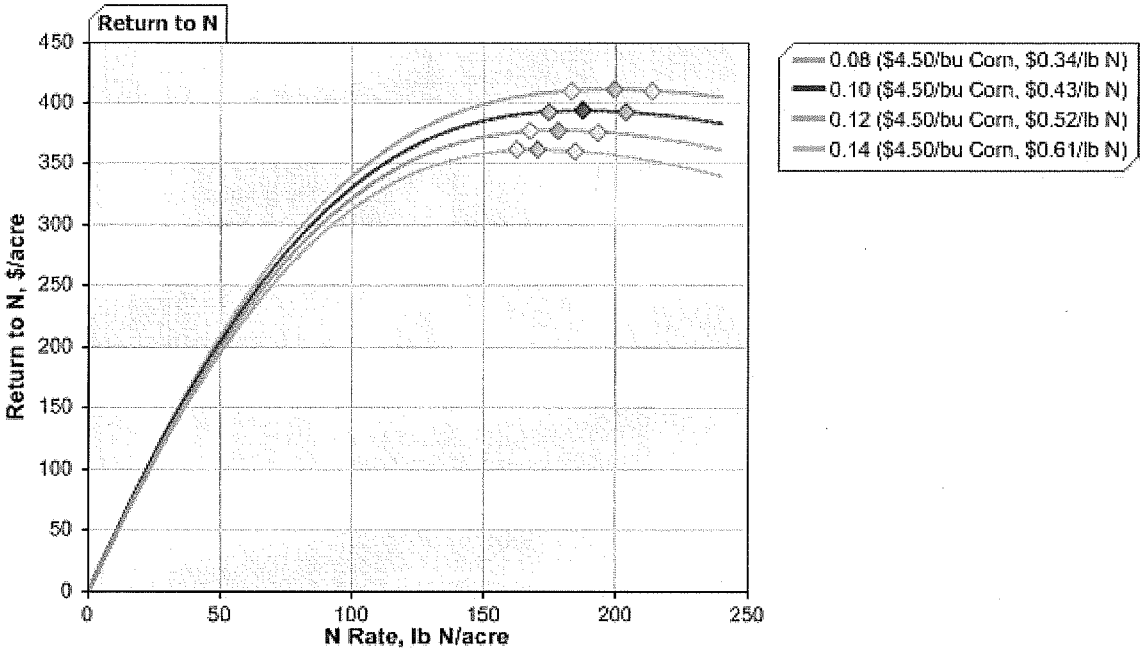
Corn Nitrogen Rate Calculator

Finding the Maximum Return To N and Most Profitable N Rate

A Regional (Corn Belt) Approach to Nitrogen Rate Guidelines

State: Illinois - Central
Number of sites: 93
Rotation: Corn Following Corn
Non-Responsive Sites Not Included

Anhydrous Ammonia (82% N) Cost per Ton	**$550**	**$700**	**$850**	**$1000**
N Price ($/lb N):	**$0.34**	**$0.43**	**$0.52**	**$0.61**
Corn Price ($/bu):	**$4.50**	**$4.50**	**$4.50**	**$4.50**
Price Ratio:	**0.08**	**0.10**	**0.12**	**0.14**
RTN Rate (lb N/acre):	**199**	**187**	**178**	**170**
Profitable N Rate Range (lb N/acre):	183 - 213	173 - 203	165 - 192	158 - 183
Net Return to N at MRTN Rate ($/acre):	$412.24	$394.87	$378.44	$362.79
Percent of Maximum Yield at MRTN Rate:	99%	99%	98%	98%
Anhydrous Ammonia (82% N) at MRTN Rate (lb product/acre):	243	228	217	207
Anhydrous Ammonia (82% N) Cost at MRTN Rate ($/acre):	$67.66	$80.41	$92.56	$103.70



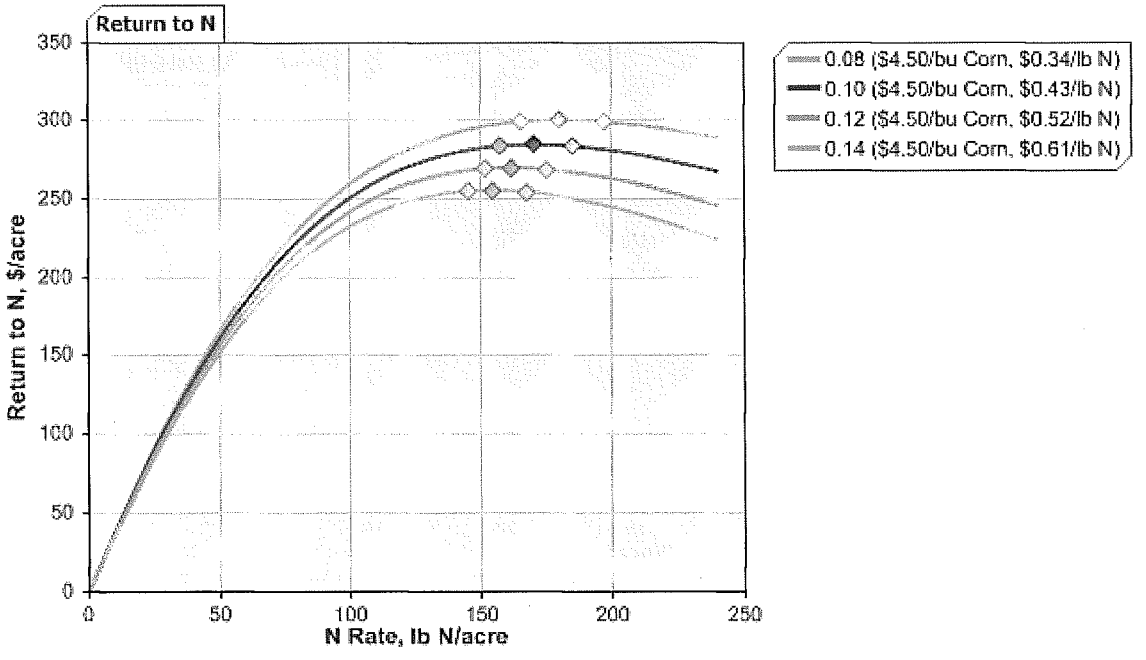
Corn Nitrogen Rate Calculator

Finding the Maximum Return To N and Most Profitable N Rate

A Regional (Corn Belt) Approach to Nitrogen Rate Guidelines

State: Illinois - Central
Number of sites: 188
Rotation: Corn Following Soybean
Non-Responsive Sites Not Included

Anhydrous Ammonia (82% N) Cost per Ton	**$550**	**$700**	**$850**	**$1000**
N Price ($/lb N):	**$0.34**	**$0.43**	**$0.52**	**$0.61**
Corn Price ($/bu):	**$4.50**	**$4.50**	**$4.50**	**$4.50**
Price Ratio:	**0.08**	**0.10**	**0.12**	**0.14**
RTN Rate (lb N/acre):	**180**	**[illegible]70**	**161**	**154**
Profitable N Rate Range (lb N/acre):	165 - 196	[illegible] - 185	148 - 175	141 - 166
Net Return to N at MRTN Rate ($/acre):	$301.01	$285.30	$270.43	$256.29
Percent of Maximum Yield at MRTN Rate:	99%	[illegible]%	98%	98%
Anhydrous Ammonia (82% N) at MRTN Rate (lb product/acre):	220	[illegible]07	196	188
Anhydrous Ammonia (82% N) Cost at MRTN Rate ($/acre):	$61.20	$73.10	$83.72	$93.94



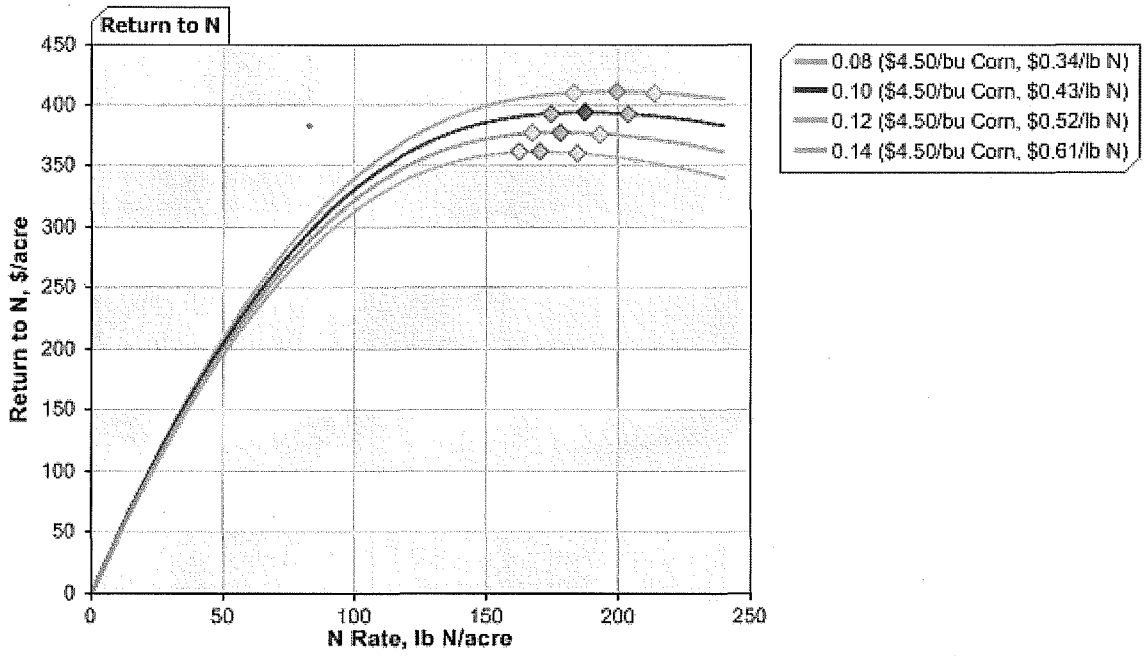
Corn Nitrogen Rate Calculator

Finding the Maximum Return To N and Most Profitable N Rate

A Regional (Corn Belt) Approach to Nitrogen Rate Guidelines

State: Illinois - Central
Number of sites: 93
Rotation: Corn Following Corn
Non-Responsive Sites Not Included

UAN (28%) Cost per Ton	**$190**	**$241**	**$291**	**$342**
N Price ($/lb N):	**$0.34**	**$0.43**	**$0.52**	**$0.61**
Corn Price ($/bu):	**$4.50**	**$4.50**	**$4.50**	**$4.50**
Price Ratio:	**0.08**	**0.10**	**0.12**	**0.14**
RTN Rate (lb N/acre):	**199**	**187**	**178**	**170**
Profitable N Rate Range (lb N/acre):	183 - 213	173 - 203	165 - 192	158 - 183
Net Return to N at MRTN Rate ($/acre):	$412.24	$394.87	$378.44	$362.79
Percent of Maximum Yield at MRTN Rate:	99%	99%	98%	98%
UAN (28% N) at MRTN Rate (lb product/acre):	711	668	636	607
UAN (28% N) Cost at MRTN Rate ($/acre):	$67.66	$80.41	$92.56	$103.70



Corn Nitrogen Rate Calculator

Finding the Maximum Return To N and Most Profitable N Rate

A Regional (Corn Belt) Approach to Nitrogen Rate Guidelines

State: Illinois - Central
Number of sites: 188
Rotation: Corn Following Soybean
Non-Responsive Sites Not Included

UAN (28%) Cost per Ton	**$190**	**$241**	**$291**	**$342**
N Price ($/lb N):	**$0.34**	**$0.43**	**$0.52**	**$0.61**
Corn Price ($/bu):	**$4.50**	**$4.50**	**$4.50**	**$4.50**
Price Ratio:	**0.08**	**0.10**	**0.12**	**0.14**
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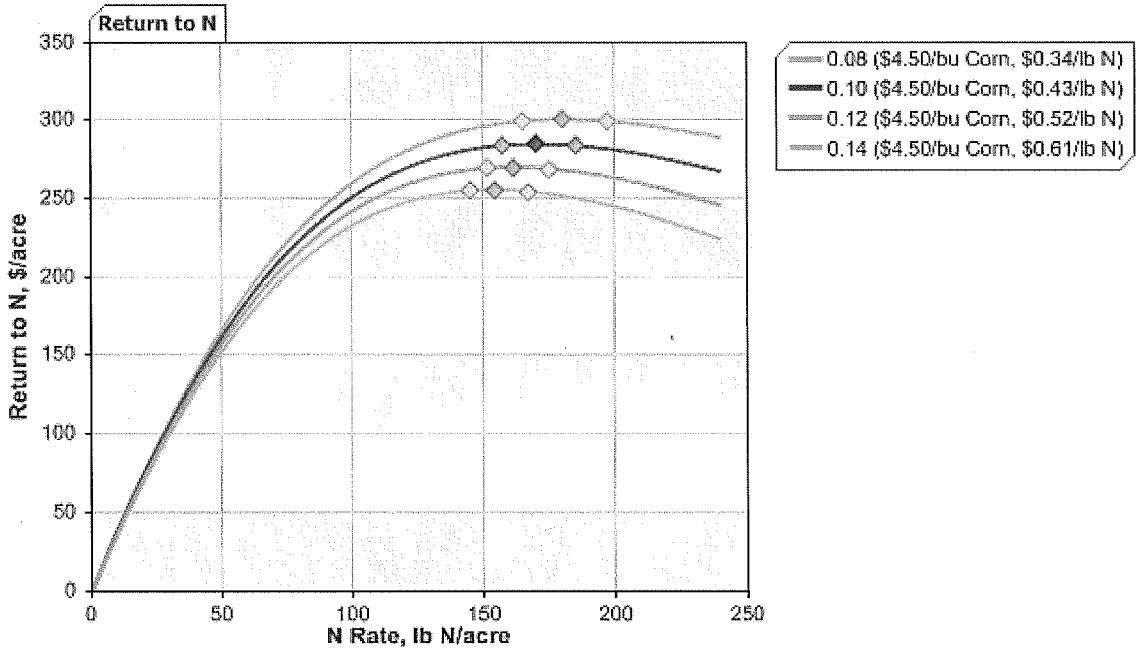


Section 1. Background and Site Information

1.1. General Description of Operation

(b) (6) Pork Farms operates the Breese farm a swine finishing facility near St. Rose in Clinton County IL.

The farm currently consists of sixteen (9) barns used to finish swine. Barns use under building pits and earthen waste storage structures for manure storage. The following illustrates the barns currently used at the Breese Farm.

- Barn one (1), measures 120' x 40' with an 4' deep under building pit. This barn is used to house a maximum of 600 head of finisher pigs. Lighter weight pigs are housed in this barn and then transferred to other barns. In addition to the under building pit the barn drains to holding pond 1.
- Barn two (2), measures 100' x 40' this is a partial slat barn with two (2) 6' wide 3' deep pits running the length of the barn. The pits drain to holding pond 1. This barn is used to house a maximum of 350 head of finisher pigs.
- Barn three (3), measures 240' x 40' this is a partial slat barn with two (2) 8' wide 3' deep pits running the length of the barn. The pits drain to holding pond 1. This barn is used to house a maximum of 1,200 head of finisher pigs.
- Barn four (4), measures 100' x 40' this is a partial slat barn with two (2) 6' wide 2' deep pits running the length of the barn. The pits drain to holding pond 1. This barn is used to house a maximum of 180 head of finisher pigs.
- Barn five (5), measures 200' x 40' this is a partial slat barn with one (1) 10' wide 4' deep pit running the length of the barn. The pit drains to holding pond 2. This barn is used to house a maximum of 750 head of finisher pigs.
- Barn six (6), measures 200' x 40' this is a partial slat barn with one (1) 10' wide 4' deep pit running the length of the barn. The pit drains to holding pond 2. This barn is used to house a maximum of 750 head of finisher pigs.
- Barn seven (7), this barn is not in use.
- Barn eight (8), measures 250' x 50' with an 18" pull plug pit. This barn is used to house a maximum of 1,350 head of finisher pigs. This barn drains to holding pond 3.

In addition to the waste storage under the buildings the facility has 4 onsite earthen holding ponds. The manure is drains from the barns to the holding pond for additional storage days. The facility currently contains all waste adequately by using the under building storage and the earthen holding ponds. Holding pond 4 is an overflow holding pond, holding pond 3 drains to this holding pond. Size and capacities of the holding pond are provided in section 2 of this CNMP.

The facility utilizes a rendering service for mortality management.

The producers do not apply their own manure. Manure is sold from the facility the sold manure is applied via custom applicator. The facility owners keep track of the gallons of manure sold.

The farmstead itself is located in Section 14 of Township 3 North, Range 4 West in Clinton County Illinois.

1.2. Sampling, Calibration and Other Statements

Soil Sampling

Soil samples for soil tests should not represent more than 2.5 acres per sample and should be done at least every 3-4 years. Any field not sampled at 2.5 acre frequency should be re-sampled at 2.5 acres grids on the next scheduled soil testing cycle.

Proper soil sampling depth for pH, phosphorus, and potassium is 7 inches. Illinois fertilizer recommendation system is based on crop response to fertility levels in the tops 7 inches of the soil profile. In addition to the regular 7 inch depth sampling if nitrogen or limestone is surface applied and not incorporated (such as in a no till system) it is important to monitor surface pH. Samples should be taken to a depth of 2 inch in at least 3 locations within a 40 acre field. These locations should represent the low, medium, and high ground of the field.

Soil samples shall be collected and prepared according to The Illinois Agronomy Handbook. Soil samples should be taken prior to manure or fertilizer applications. Since manure will typically be applied to soybean stubble during the fall previous to planting corn in the spring, soil tests should be taken in soybean stubble prior to manure application. Wait 9 months after manure or fertilizer applications before soil testing so that unabsorbed nutrients do not affect the results.

The minimum soil analysis for CNMP's should include the following parameters:

- *soil pH,*
- *phosphorus (P as indicated by Bray P1 test)*
- *potassium, (K)*

In addition, Cation Exchange Capacity (CEC), and soil organic matter should be tested to help determine liming and fertilizer recommendations. Soil testing should include analysis for any nutrients for which specific information is needed to develop the nutrient plan.

Manure Sampling

When collecting a manure sample from a storage facility, the most important thing to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g., a holding pond and a drystack) each unit should be sampled separately (e.g., the producer will need to collect two samples, one to represent each manure type, liquid sample, and a solid sample).

Manure tests for liquid manure should be taken every time manure is removed from each type of storage until average nutrient values can be determined.

Manure Tests for solid manure should be taken before each major spreading time such as spring and fall until average nutrient values can be determined.

Manure Spreader/Tanker Calibration

There are several methods that can be used to calibrate the application rate of a manure spreader. The two best methods are the load-area method and the plastic sheet method. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to establish a more accurate calibration.

Before calibrating a manure spreader, the spreader settings such as splash plates should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating application rates when overlapping is involved requires measuring the width of two spreads and dividing by two to get the effective spread width.

Calibration should take place annually or whenever manure is being applied from a different source or consistency.

Load-Area Method

The load-area method is the most accurate and can be used for most types of manure handling. This method consists of determining the amount (volume or weight) of manure in a spreader and the total area over which it is applied. The most accurate method to determine the amount of manure in a spreader is to weigh the spreader when it is full of manure and again when it is empty (portable pad scales work well for this). The difference is the quantity of manure applied over the area covered. Spreader capacities listed by the manufacturers can be used to determine the amount of manure in the spreader. However care must be taken when using manufactures spreader capacities. Heaped loads, loading methods and manure type may vary considerably from what is listed by manufacturers of box and side delivery manure spreaders. Spreader capacities for liquid tankers are accurate provided the tanker is filled to the manufactures recommended levels, and no foam is present in the tank.

The area of spread is determined from measuring the length and width of the spread pattern. Measuring can be done with a measuring wheel, measuring tape or by pacing.

The application rate is calculated using the following formula:

$$\frac{\text{Spreader capacity (tons or gallons)} \times 43560 \text{ sq. ft/acre}}{\text{Distance traveled} \times \text{Spreading width}} = \text{Application Rate tons or Gallons/Acre}$$

Plastic Sheet Method

The plastic sheet method can only be used with solid or semi-solid manure. This method of calibrating spreader application rates involves 1) cutting a plastic sheet to the specified dimensions (56 inches X 56 inches), 2) weighing the clean plastic sheet, 3) laying out the plastic sheet on the ground and driving the manure spreader (applying manure at a recorded speed and spreader setting) over the sheet, 4) weighing the plastic sheet with the manure on it, and 4) determine the net weight of the manure on the sheet (weight of manure and sheet - weight of the clean sheet), and 5) the net pounds of manure equals tons per acre applied.

When calibrating manure spreaders, all details regarding tractor speed and manure spreader settings and date(s) of each calibration should be recorded with manure application information, and directly on the equipment. Mark equipment to ensure a known application rate is applied each time the referenced tractor speed and spreader settings are used. Manure spreader settings can include such things as: fast and slow settings on some box spreaders, gate position on side delivery spreaders and splash plate position and fill levels on liquid tankers.

Storm Water Management Plan

Site Location
The facility is located in Section 14 of Township 3 North, Range 4 West in Clinton County Illinois. This facility is located in a rural agricultural area where row crops are grown.

Storm Water Management
Storm water should be directed away from the facility buildings and facilities. The finished man-made and surrounding natural topography should allow all surface water to flow away from the facility in a southerly direction. The buildings are on a relatively level portion of land. The surrounding topography and the gravel allow the storm water to disperse away from individual buildings and the sites.

Facility Access
The facility is accessible through one private gravel drive. Only facility employees, feed/animal transportation vehicles or facility service personnel are permitted at the facility for reasons of bio-security. All animal transportation vehicles are required to enter the site clean and free of animal waste or other debris. No vehicles entering the site will be permitted to clean, wash, or empty excess materials onto the ground of the site.

Facility Commodity Management
The products utilized at the facility consist of feed for facility livestock. All feedstuffs are stored under roof or in bins.

Facility Mortality Management
On the rare occasion in which mortalities occur the facility utilizes composting.

Litter Management
A proper number of dumpsters will be provided on site to handle debris and litter associated with the facility. The litter will be disposed of in an appropriate and timely manner.

Hazardous Waste
There is no and will be no hazardous waste generated at this site.

Maintenance/Inspection Procedures
Facility roads, commodity storage areas, etc., will be inspected at least once a month. A maintenance inspection report will be recorded following each inspection. A copy of the inspection form is provided on the following pages and in the Producer Activity Document.

Storm Water Best Management Practices

Grounds:

- Maintain sufficient surface drainage away from buildings.
- Permanent vegetation will be maintained across the facility.
- Divert rain water away from areas where it could pond.
- Maintain proper gravel cover and landscape gradient so that water does not stand in access roads and around the production facility.
- Remove any spilled feed promptly.

Stormwater Management
Inspection Report Form
To Be Complete Every Month

Inspector: _____ Date: _____

Inspector's Qualifications: _____

Days Since Last Rainfall: _____ Amount of Last Rainfall: _____

Area	Date of Last Inspection	Date of Next Inspection	Stabilized Yes/No	Condition of Vegetation	Visible Erosion
Facility Structures					
Access Drive/Areas					
Vegetated Areas					
Materials Handling Areas (not livestock waste)					
Refuse Sites					
Mortality Areas					
Materials Handling Equipment Storage Areas					
Shipping/Receiving Areas					

Comments: _____

_____

Action(s) Required: _____

_____

To Be Performed By: _____ On or Before: _____

Odor and Pathogen Management

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that affect odor are:

- Type of operation
- Ventilation method
- Animal diets
- Season
- Management skill or effort
- Building design
- Animal numbers
- Manure treatment system
- Topography

A. Animal Cleanliness

Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.

Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.

B. Minimize Dust

It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.

Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.

Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens).

C. Waste Storage Facility

To reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:

If odors from the facility become a concern, consideration can be given to alternatives and additional practices including but not limited to covered anaerobic digesters, and composting facilities.

Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.

Consideration should also be given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.

D. Animal diets

Diets can also be manipulated to produce less manure production and odors from the manure. Much of the odors from manure are from nitrogen, sulfur and carbohydrate containing volatile compounds. Balancing the diet with the proper amounts and forms of protein and reducing excess protein in the diet will reduce nitrogen excretion and odor emissions from the manure.

E. Proper Disposal of Mortality

See section 2.5 in this CNMP

F. Good Fly and Rodent Control Programs

These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized. Fly and rodent bait stations and/or boxes should also be utilized to control populations. Check all bait stations regularly and replace when necessary.

Future Wells

When installing new wells, springs or other potable water sources, due consideration must be given to the distance, grade and location of the waste storage facility to the new water source. The Department of Health, Department of Agriculture and/or Natural Resources Conservation Service should be consulted as to installing new potable water supplies in relation to the waste storage facility.

Winter Application of Manure

Application to frozen or snow-covered soils is not recommended. However, if manure application is necessary, only small amounts shall be applied that adequately address waste storage concerns until non-frozen land is available. These instances must be documented in the CNMP records. If winter application is deemed necessary, applications are to be applied only if ALL the following criteria are met:

Application rate is limited to 10 wet tons/acre for solid manure more than 50% moisture and 5 wet tons for manure less than 50% moisture. Applications are to be made on land with at least 90% surface residue cover (e.g. good quality hay or pasture field, all corn grain residue remaining after harvest, all wheat residue cover remaining after harvest).

Manure shall not be applied on more than 20 contiguous acres. Contiguous areas for application are to be separated by a break of at least 200 feet. Utilize those areas for manure application that are furthest from streams, ditches, waterways, surface water, etc. (areas that present the least runoff potential and are furthest from surface water).

Increase the application setback distance to 200 feet "minimum" from all grassed waterways, surface drainage ditches, streams, surface inlets, water bodies. This setback distance may need to be further increased due to local conditions.

Additional winter application criteria for fields with significant slopes more than 5%.

Manure shall be applied in alternating strips 60 to 200 feet wide generally on the contour, or in the case of contour strips on the alternating strips. The fields must have erosion control practices implemented and have a RUSLE2 soil loss of less than T.

Manure Application on Steep Fields

Waste shall not be applied to land with slopes over 15%.

Manure Application on Fields Subject to Flooding

Manure is not to be land-applied on soils that are frequently flooded during the period when flooding is expected unless incorporated immediately.

Manure application on Pasture and Hay.

The disadvantages and risks associated with manure application on pasture and hay are primarily due to method, timing and rate of application. Broadcasting manure on actively grazed pastures may result in livestock refusal to graze fouled forage. This is more of an issue with liquid manure than solid. Crop smothering can occur if high rates (in excess of 50 to 60 tons/acre) of solid manure are applied or if application is not uniform and large clumps are deposited. Uniform application can be especially difficult when long-stemmed bedding is used in large quantities.

Whether the N source is manure or commercial inorganic fertilizer, application of more N than the crop can use for growth and convert to organic forms will cause accumulation of high levels of nitrate (NO_3) in the crop and the potential for nitrate poisoning. Therefore, care must be taken that N application rates do not exceed crop requirements. If in doubt, test the forages for nitrate levels.

Potassium concentrations in grasses that receive manure applications may also be an issue. Very high K

concentrations in a ration can cause reduced absorption of calcium (Ca) and magnesium (Mg), which in turn can cause metabolic disorders in cattle including milk fever and calving problems. Urine output is greatly increased and therefore the risk of kidney failure is increased when cattle are on a ration very high in K. Potassium content of grasses appears to generally increase as a result of manure application. However, the K concentration alone may not be the only factor in such animal health issues. Low Mg:Ca ratios and Mg:(K+Ca) ratios can cause grass tetany. There are species differences in these ratios even when K concentrations are similar. Forage testing can indicate potential problems.

Species composition of mixed forage stands (native and tame) is altered by increasing fertility levels. Because species that are more responsive to higher fertility tend to become dominant, forage production may increase due to the change in species mix but biodiversity is lost.

Weed infestations originating from seeds in manure are another possible drawback to applying manure on forage. These infestations are generally more difficult to deal with in forage crops than in annuals. Weeds in hay can decrease its quality and value especially in horse-hay or dairy-quality alfalfa. If weeds are a concern, then consider composting manure. Proper composting will kill most weed seeds.

General Liquid Manure Applications

For liquid wastes, the application rate is to be adjusted to the most limiting factor to avoid ponding, surface runoff, subsurface drainage (tile) discharge, the nutrient needs of the field, or the nitrogen or phosphorus risks of the field. The total application is not to exceed the field capacity of the upper 8 inches of soil. See the guide for determining soil moisture content below. No applications should be made when the field reaches 100% of its available capacity. The actual application rate shall be adjusted during application to avoid ponding or runoff. Bare/crusted soils may require some tillage to improve infiltration.

Tile Drained Fields

Fields or areas of fields that are subsurface (TILE) drained require additional precautions. When liquid wastes are applied to fields with TILE drains, the liquid can follow soil macro-pores (in dry soils) directly to the tile drains creating a surface water pollution hazard from direct tile discharge. (A field is considered TILE drained if ½ or more of the field is subsurface (tiled) drained; however, even a field with one subsurface drainage line may present a risk of manure/wastewater movement to subsurface drains and cause a direct discharge. Do not apply application rates (volume) that would exceed AWC in the upper 8 inches.

Prior to manure application, use a tool (AERWAY tool or similar tool) that can disrupt/close (using horizontal fracturing) the preferential flow paths (worm holes, cracks, root channels) in the soil, or till the surface of the soil 3-5 inches deep to a condition that will absorb the liquid wastes. The purpose is to have the surface soil act as a sponge to soak up the liquid manure and keep it out of preferential flow channels. This is especially important if shallow tile are present (<2 feet deep). Any pre-application tillage should leave as much residue as possible on the soil surface. The adsorption of liquid manure by the soil in the root zone will minimize nitrogen loss and the manure/nutrient runoff potential. For perennial cops (hay or pasture), or continuous no till fields where tillage is not an option, all tile outlets from the application area are to be plugged prior to application. This criteria (4b.) may be waived if the producer can verify there is no prior history of manure discharge via subsurface drains. However, if there is a discharge, the producer is liable for damages and may risk being classified as a CAFO.

If injection is used, inject only deep enough to cover the manure with soil. Till the soil at least 3 inches below the depth of injection prior to application, or all tile outlets from the application area are to be plugged prior to application. This criteria may be waived if the producer can verify there is no prior history of manure discharge via subsurface drains. However, if there is a discharge the producer is liable for damages and may risk being classified as a CAFO.

In accordance with NPDES General Permit, Special Condition 4, Part E, Subpart iii, and Special Condition 7, Part E; producers should visually inspect subsurface drainage systems prior to and after land applications. Visual inspections may determine failures of subsurface drainage systems that may cause discharges. Visual inspections should be completed for all tile risers, collection boxes, and outflow locations located within or down gradient of application areas

In addition to tillage prior to surface liquid waste application or injection, install in-line tile flow control structures or (inflatable) tile plugs that can mechanically stop or regulate tile flow either prior to application, or have on site if needed to stop tile flow. Use caution not to back tile water where it may impair the functioning of an offsite subsurface drainage system. These criteria may be waived if the producer can verify there is no prior history of manure discharge via subsurface drains. However, if there is a discharge the producer is liable for damages and may risk being classified as a CAFO.

Repair broken tile or blow holes prior to application.

Guide to Determining Soil Moisture Content

Available Moisture Remaining in the Soil	Sand-Sandy Loam	Loam-Silt Loam	Clay Loam-Clay
0% moisture Wilting point	Dry and loose; flows through fingers	Powdery, sometimes slightly crusted but easily broken into powder	Hard, baked and cracked; difficult to break into powder
50% or less soil moisture	Loose, feels dry	Forms a weak ball when squeezed but will not stick to tools	Pliable but not slick, balls under pressure, sticks to tools
50-75% or less soil moisture	Balls under pressure, but seldom holds together when bounced in hand	Forms a ball under pressure; somewhat plastic; slicks slightly under pressure. Does not stick to tools	Forms a ball; ribbons out between thumb and forefinger, has a slick feeling
75% to Field Capacity	Forms a weak ball, breaks easily when bounced in the hand; can feel moistness	Forms ball; very pliable; slicks readily if relatively high in clay, clings slightly to tools	Easily ribbons out between fingers; has a slick feeling, very sticky.
100% Field Capacity	Soil mass clings together. Upon squeezing, outline of ball is left on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand	On squeezing, no free water appears on soil, but wet outline of ball on hand. Sticky enough to cling to fingers

Livestock Management Facilities Act Regulatory Provisions

For facilities with > 1,000 animal units, follow these guidelines on manure application to conform to state regulatory provisions for the LMFA.

o) Waste applied within 1320' (1/4 mile) of any residence not part of facility shall be injected or incorporated on the day of application

p) Waste shall not be applied within 200' of surface water unless the water is up-gradient or there is adequate diking and waste will not be applied within 150' of potable water supply wells

q) Waste shall not be applied within a 10-year floodplain unless the injection or incorporation method is used

r) Waste shall not be applied in waterways

s) Waste that is spread on frozen or snow-covered ground will be limited to land areas with:

1. less than 5% slope, OR
2. adequate erosion control provisions exist

t) Certified livestock manager shall inspect all bermtops, exterior berm sides, and non-submerged interior berm sides for evidence of erosion, burrowing animal activity, and other indications of berm degradation on a frequency of not less than once every two weeks

u) Waste shall not be applied during a rainfall or to saturated soil and that conservative waste loading rates will be used in the case of a high water table or shallow earth cover to fractured bedrock. Caution should be exercised in applying livestock wastes, particularly on porous soils, so as not to cause nitrate or bacterial contamination of groundwaters.

Land Application Record Keeping

Records must be maintained for 5 years

The producer must maintain records to document plan implementation. Records should include the following, when applicable:

- soil test results and recommendations for nutrient application
- amounts, analyses, and source of nutrients applied
- dates and method of nutrient applications
- crop rotations, planting and harvesting dates, yields, and crop residues removed
- results of water, plant, and organic by-product analyses
- dates of review, person performing review, and recommendations that resulted from the review of the CNMP

Operation and Maintenance for CNMP

- Periodic review of plan to determine if adjustments or modifications to the plan are needed. At a minimum, the plan should be reviewed and revised with each soil test cycle (recommended annually).
- Protection of fertilizer and organic by-product storage facilities from weather and accidental leakage or spillage,
- Calibration of application equipment to ensure uniform distribution of material at planned rates
- Documentation of the actual rates at which nutrients where applied. When the actual rates differ from the planned rates, records will indicate reasons for the differences.

1.3. Resource Concerns

Manure & Wastewater Storage & Handling

Facility has adequate manure storage. No additional manure storage is planned at the facility with the exception of normal maintenance activities.

Land Treatment Practices

No application fields are included in this CNMP all waste is sold and applied offsite by a custom applicator. Any land treatment activities are the responsibility of the land owner and/or farmer of the fields where applications take place.

Nutrient Management

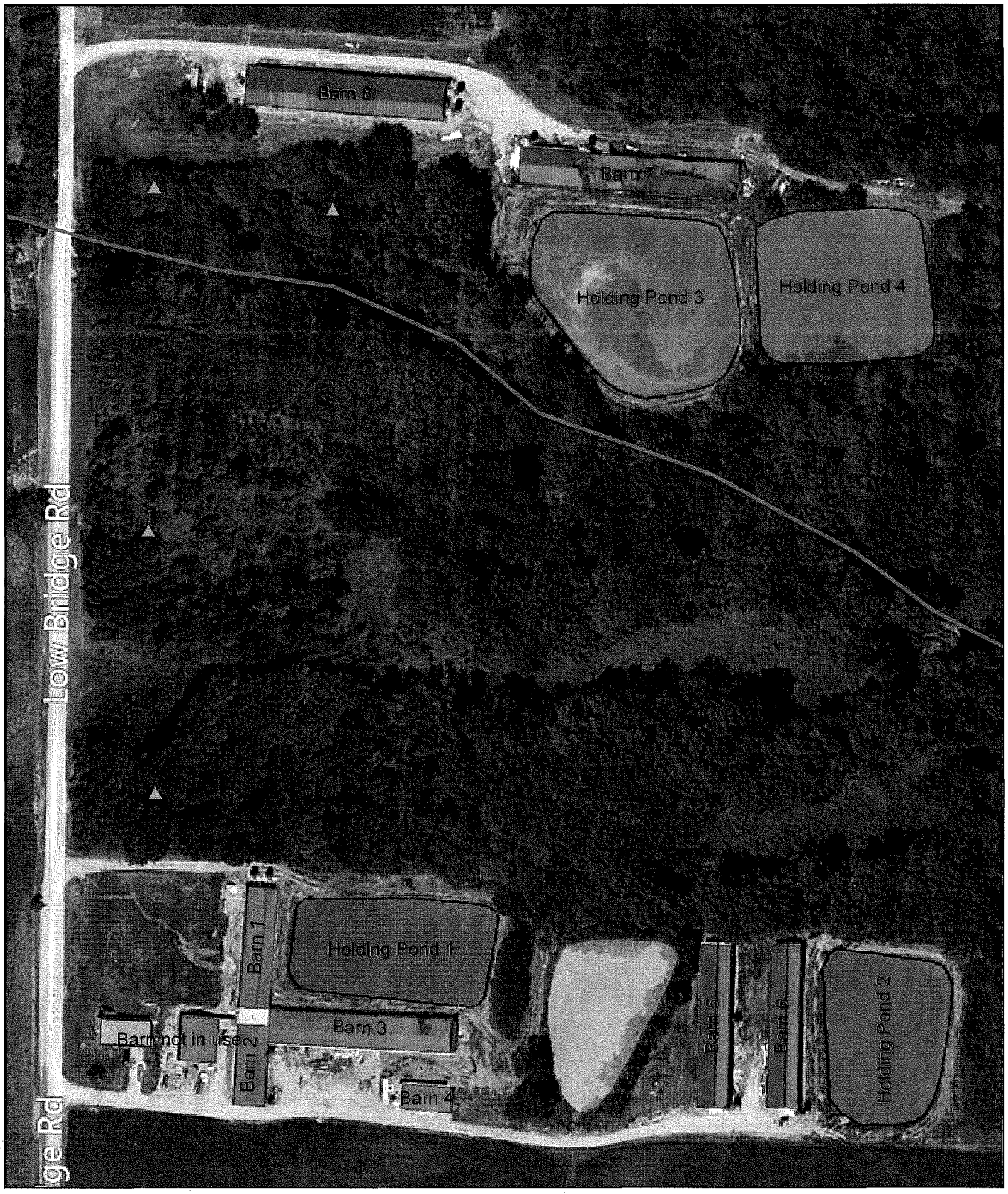
No application fields are included in the CNMP all waste is sold and transferred offsite by a custom applicator. It is the purchaser's responsibility to make sure applications are made at agronomic rates. The farm will provide purchaser of manure a copy of the manure analysis.

Section 2. Manure and Wastewater Handling and Storage

2.1. Maps of Production Area

See following pages

(b) (6) Pork Farm
Breese Location
Facility Plan View



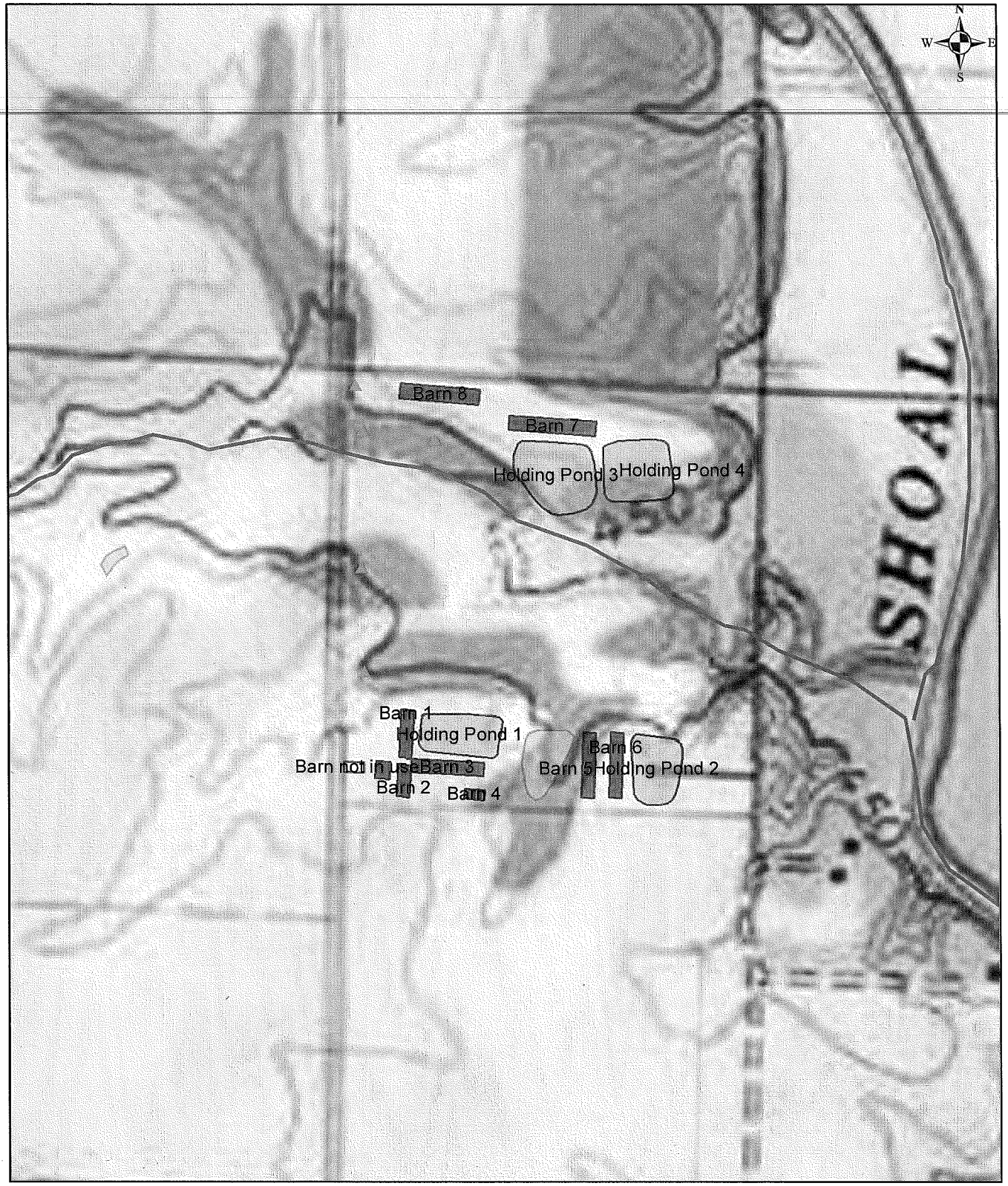
Legend

- Livestock Facilites
- Livestock Waste Storage
- Other Farm Building
- Water
- Wells
- Pond or Lake

180 Feet

Frank & West
Environmental Engineers, Inc.
7226 N. State Route 29
Springfield, IL 62707
Phone: 217/487-7686
Fax: 217/487-7687

(b) (6) Pork Farm
Breese Location
Facility Topo Map



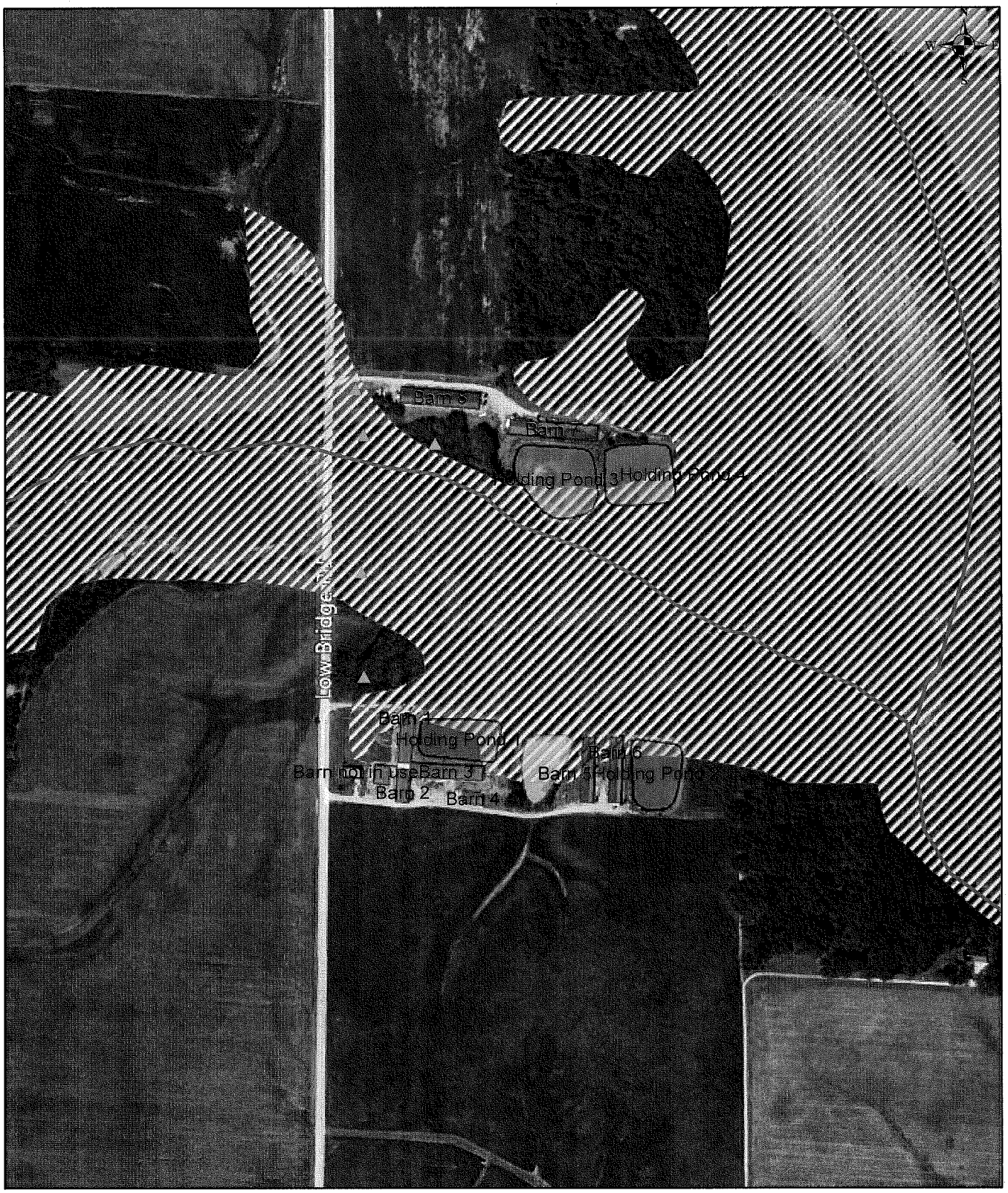
Legend

- Livestock Facilites
- Livestock Waste Storage
- Other Farm Building
- Water
- Wells
- Pond or Lake

450 Feet

Frank & West
Environmental Engineers, Inc.
7520 N. State Route 29 Phone: 217/487-5880
Springfield, IL 62707 Fax: 217/487-5887

(b) (6) Pork Farm
Breese Location
Facility Flood Zone Map



Legend

- Livestock Facilites
- Livestock Waste Storage
- Other Farm Building
- Water
- Wells
- Pond or Lake
- 100 Year Flood Zone

450 Feet

Frank & West
Environmental Engineers, Inc.
7226 N. State Route 29
Springfield, IL 62707
Phone: 217/487-7688
Fax: 217/487-7687

2.2. Production Area Conservation Practices

Facility has adequate manure storage. No additional manure storage is planned at the facility. Modifications to the existing waste storage structures are not planned with the exception of normal maintenance activities.

Production Area Conservation Practices (non waste storage)

Feed Storage Areas

- Areas used to store feedstuffs such as silage, wet distillers grain, or gluten need to be maintained so that runoff is prevented. Silage bags if maintained correctly should not be a source of runoff.

Location

- Feed is stored in bulk bins located near the buildings

Operation and Maintenance

- Berms, ditches, or other diversion or control methods should be checked to insurer structural
- integrity.
- Perimeter of the feed storage area should be checked regularly to insure that run-on and run-off controls are in working order.
- Area should be checked for proper drainage.
- Employees should be instructed to repair or report malfunctions or damage.
- Pumps are to be checked and serviced as necessary.
- Feed covers are kept in good repair or replaced if necessary.
- Plastic from covers are to be collected and prevented from clogging feed area runoff controls.
- Spoiled feed should be disposed of, covered or appropriately managed.
- Surface of feed storage area is managed to prevent infiltration of silage and feed leachate to underlying soil.

Manure Transfer (agitator) NRCS Practice Code 634

- A system using structures, conduits or equipment to convey byproducts (wastes) from agricultural operations to points of usage.

Design

- Agitators installed to facilitate pumping of liquid or slurry waste for transfer shall be sized to provide agitation of the volume of storage, and shall be compatible with the type and consistency of the material. Requirements for agitator sizing, installation and operation shall be based on manufacturer's recommendations.

Operation and Maintenance

- Follow all operation and maintenance instructions provided by the manufacturer.
- Operate the agitator/pump at or below the specified maximum power rating for the system.
- Liquid or slurry material shall be adequately agitated prior to transfer for the purpose of land application both on and off the farm. For agitation in a lined holding pond, ensure that the agitator does not damage the liner.
- Manure agitation can produce toxic gases in buildings built above the pit. Toxic gases can also emanate in buildings situated by the pit and/or connected to the pit by an evacuation line. For

agitation in an enclosed storage pit, turn off all potential sources of ignition, provide adequate ventilation, and ensure all people are out of the building.

- Do not enter into a manure pit at any time.
- Make sure that no person is in close proximity to any moving parts before engaging the drive.
- Drain and/or provide for cold weather operation of the system.
- Follow your Comprehensive Nutrient Management Plan (CNMP) for scheduling and amount of land application of waste material.
- Minimize flies and other insects and odors during the transfer of material.

2.3. Manure Storage

Seabaugh Pork Farm Breese Location - Summary of Waste Volume Calculations

Existing Sites	Waste Produced (ft^3)	Waste Produced (Gallons)	Waste Storage (ft^3)	Waste Storage (Gallons)	Storage Days
Under Building Storages and Earthen Holding Ponds	346,716	2,593,615	844,346	6,615,604	931
Total	**346,716**	**2,593,615**	**844,346**	**6,615,604**	**931**

Waste Storage Facility NRCS Practice Code 313

- A waste storage impoundment made by constructing an embankment and/or excavating a pit or dugout, or by fabricating a structure.

Location

- Shown on plot plan

Operation and Maintenance

- Check backfill areas around facilities often for excessive settlement. Determine if settlement is caused by consolidation, piping or failure of the structure walls or floor. Necessary repairs must be made. Refer to safety items.
- Check walls and floor often for cracks and/or separations and make needed repairs.
- Check earth berms and embankments for sloughing, erosion or settlement. Maintain embankment and backfill elevations as specified in the design.
- Check a minimum of two times a year and when the facility is empty. Maintain design elevation of berms and fill.
- Outlets of foundation drains should be checked frequently and kept open. The outflow from these drains should be checked periodically when the storage facility is being used to determine if there is leakage from the facility into these drains. Leakage may be detected by the color and smell of the outflowing liquid, by lush dark green growth of vegetation around the outlet, by the growth of algae in the surface ditch or by the vegetation being killed by the outflowing liquid. If leakage is detected, repairs should be planned and made to prevent the possible contamination of groundwater. Refer to safety items when planning and making repairs. Quarterly samples should be collected from foundation drains as required by the Livestock Management Facilities Act.
- Divert surface water away from the storage facility. Check the channels and berms of the clean water diversions around the barnyard, buildings and storage facility frequently. Channels must be protected from erosion and berms must be maintained at proper height so the diversion channels have adequate capacity. These channels and berms should not be used as haul roads unless they were designed and constructed as haul roads.
- Check frequently for burrowing animals around buildings, structures, berms and backfill. Remove them and repair any damage.
- Inspect haul roads and approaches to and from the storage facility frequently to determine the need for stone, gravel or other stabilizing material.
- Do not allow runoff from loading areas and/or spills to flow into streams or road ditches.
- Install and maintain a marking or gauge post that clearly shows the design, one-half, and full levels of the facility.
- Repair or replace any rusted or damaged metal and paint.
- A good vegetative cover of recommended grasses should be maintained on earth berms and embankments. If the vegetative cover is damaged, it should be reseeded as soon as possible. The vegetative cover should be mowed at least twice a year to control weeds, encourage vigorous
- growth and discourage rodent activity.
- Immediately repair any vandalism, vehicular or livestock damage to the facility, the surrounding area, or any appurtenances.
- Pump-out shall commence when the deep pit facilities are approximately 1' from the bottom of the slats and should continue until the depth is reduced to approximately 1'.

2.4. Animal Inventory

Existing Animal Inventory

Animal Group	Type or Production Phase	Number of Animals (1)	Animal Units LMFA (2)	Animal Units 1000 lb (3)	Average Weight (Lbs)	Confinement Period (4)	Manure Collected (%)	Storage Where Manure Will Be Stored
Finisher Pigs	Wean-finish pig	4,880	1,952	751.5	154	Year around	100	Existing Deep Pit & Earthen Storages

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.
(2) This number represents the number of animal units using the Illinois Department of Agriculture animal unit factor as defined in the livestock management facility act Section 506.103
(3) This animal unit number represents the total 1000 lb animal units as used by NRCS. Animal units are calculated by using the following equation: (total number of animals x average weight) /1000 lbs
(4) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

Detailed Waste Volume Calculations are located on the following pages.

(b) (6) Swine Waste Volume Calculations

DAILY VOLUME CALCULATIONS	Average (1) Animal Weight (lbs)	Max Design No. of Head at any time	Total Number of Animal Units(2)	Days Fed (3)	Turns per year	Manure production ft^3 per day per 1000 lb. animal unit (4)	Total Manure Production (cu.ft.)(5)
Finishing Pigs	154	4,880	751.52	150	2.2	1.1	272,801.8
Totals		**4,880**	**751.5**				**272,801.8**

Rainfall vs. Evaporation on Holding Ponds (6)	
	Precip./Evap. (in.)
Annual Rainfall	39.0
Annual Evaporation	37.4
Total Precip vs. Evap.	1.6

Liquid Storage Volume					
	Length (ft.)	Width (ft.)	Height (ft.) (7)	Number of Components	Volume (ft^3)
Barn 1	120	40	4	1	13,923
Barn 2	100	6	3	2	1,980
Barn 3	240	8	3	2	6,692
Barn 4	60	6	2	2	590
Barn 5	200	10	4	1	5,373
Barn 6	200	10	4	1	5,373
Barn 7		Not in use		1	0
Barn 8	250	50	1.5	1	6,101
Holding Ponds		See holding pond calculation page			844,346
				Total Volume (cu.ft.)	884,378
				Total Volume (gal)	6,615,604

Annual Liquid Waste Generated			
	Daily Volume	Period	Total Volume
	(cu.ft.)	(days)	(cu.ft.)
Liquid Waste Generated	747.4	365	272,802
		Washwater (8)	5,000
		Rainfall vs. Evap. on Holding Ponds	68,914
		Annual Volume Generated (cu.ft.) (9)	**346,716**
		Annual Volume Generated (gal.) (9)	2,593,615.2

Storage Days
931

1 - Average Animal weight obtained from Producer
2 -Total number of Animal Units = (Average Weight x Number of Head)/1000
3 - Days fed obtained from NRCS AWMFH table 4-10d notes.
4 - Manure production lbs per day per 1000 lb animal unit obtained from NRCS AWMFH Table 4-10d
5 - Total Manure Production = (Total Number of Animal Units) x (Manure Production lbs per day per 1000 lb Animal Unit) x (Days Fed) x (Turns per Year)
6 - Rainfall and Evaproation numbers from State Climatologist Office Bulletin 70
7 - Height of pit takes into account 6" for sludge and 6" for air movement.
8 - Washwater estimated
9 - Annual Volume Generated = Total Manure Production + Washwater + Rainfall vs. Evap. On Holding Ponds

Earthen Holding Pond Volume Calculations

Holding Pond 1	
Top Length	220
Top Width	120
Freeboard Length	208
Freeboard Width	108
Length - (L)	100
Width - (W)	0
Depth	20
Freeboard Depth - (D)	18
Slope - (Z)	3
Volume - (V) ft^3	167,184
Volume - (V) gal	1,250,620
Surface Area (top)	**26,400**
Surface Area (freeboard elev.)	**22,464**

Holding Pond 2	
Top Length	200
Top Width	120
Freeboard Length	188
Freeboard Width	108
Length - (L)	110
Width - (W)	30
Depth	15
Freeboard Depth - (D)	13
Slope - (Z)	3
Volume - (V) ft^3	140,244
Volume - (V) gal	1,049,095
Surface Area (top)	**24,000**
Surface Area (freeboard elev.)	**20,304**

Holding Pond 3	
Top Length	300
Top Width	190
Freeboard Length	288
Freeboard Width	178
Length - (L)	210
Width - (W)	100
Depth	15
Freeboard Depth - (D)	13
Slope - (Z)	3
Volume - (V) ft^3	456,534
Volume - (V) gal	3,415,103
Surface Area (top)	**57,000**
Surface Area (freeboard elev.)	**51,264**

Holding Pond 4	
Top Length	100
Top Width	190
Freeboard Length	88
Freeboard Width	178
Length - (L)	40
Width - (W)	130
Depth	10
Freeboard Depth - (D)	8
Slope - (Z)	3
Volume - (V) ft^3	80,384
Volume - (V) gal	601,313
Surface Area (top)	**19,000**
Surface Area (freeboard elev.)	**15,664**

Trapezoidal Basin Equation:
$V = LWD + (L+W)ZD^{\wedge 2} + 4/3(Z^{\wedge 2}D^{\wedge 3})$
where:
V = volume of trapezoidal basin (ft3)
L = length of basin at base (ft)
W = width of basin at base (ft)
D = depth of basin @ Freeboard Elevation (ft)
Z = side slope factor, ratio of horizontal to vertical

Holding Pond Totals	
Volume - (V) ft^3	844,346
Volume - (V) gal	6,316,130
Surface Area (top)	**126,400**
Surface Area (freeboard elev.)	**109,696**

2.5. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Management of Dead Animals

Normal mortality for the animal feeding operation must be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal. This facility uses a rendering service to handle all mortalities.

2.6. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
Nov 2012	Liquid Manure	1,800,000 Gal	Sold Manure to neighboring farmers.	Tebbe and Vanderharr Farms
Nov 2013	Liquid Manure	2,500,000 Gal		
Nov 2014	Liquid Manure	2,500,000 Gal		
Nov 2015	Liquid Manure	2,500,000 Gal		
Nov 2016	Liquid Manure	2,500,000 Gal		

2.7. Planned Manure Imports onto the Farm

(None)

2.8. Planned Internal Transfers of Manure

(None)

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

Located on the following pages

EMERGENCY ACTION PLAN

Contact Names & Numbers - Human Injury

Facility Name: (b) (6) Pork Farms Breese Location
Facility Owner Info:
Name: (b) (6) Phone: (b) (6)
Name: Phone:
Facility Address (911) 19722 Low Bridge Road, Breese IL 62230

Livestock Manager Info *~if different than owner~*
Name: (b) (6) Phone: (b) (6)
Certification Number:

Specific Directions to the facility:
From: Highland, IL: Head east on Broadway toward Luzerne St (1.2 mi). Continue onto St. Rose Road. (5.0 mi) Continue onto Co Road 2100 N/Surge Road (2.1 mi). Turn right onto Co. Road 1000 E/Jamestown Road (0.5 mi). Take the 1st left onto Co Road 2050 N/Low Bride Road Continue to follow Low Bridge Road Destination Will be on the left (1.5 mi).

Ambulance Phone: 911
Fire Department Phone: 911
Illinois Poison Center Phone: 1/800-222-1222

Doctor or Physician Name: Phone:

Hospital or Medical Clinic Name: St. Joseph's Hospital Phone: 618-651-2600

Other: Phone:

County Sheriff Name: Clinton County Phone: 618-594-4555

Other Name: Phone:

Other Name: Phone:

Other Name: Phone:

*Post by all facility **telephones** for reference*

EMERGENCY ACTION PLAN

Actions, Contact Names & Numbers - Partial System Failure

Electrician Name: (b) (6) Phone: (b) (6)

Electric Co. Name: Clinton County Electric Coop Phone: 618-526-7282

LP/Natural Gas Name: Wade Sales & Services Inc Phone: 618-526-7243

Plumbing Name: (b) (6) Phone: (b) (6)

Ventilation Name: _____ Phone: _____

Heating Name: _____ Phone: _____

Feed Name: DeKalb Feed Phone: 815-441-3680

Veterinarian Name: Professional Swine Mgmt. Dr. Kelly Griner Phone: 217-357-2811

Morality Disposal Name: Darling International Phone: 217-482-3261

Insurance Carrier Name: Country Companies Phone: 217-324-4333

Engineering Company: Frank & West Environmental Engineers Phone: 217/487-7686

Other Name: _____ Phone: _____

Other Name: _____ Phone: _____

Other Name: _____ Phone: _____

Other Name: _____ Phone: _____

CATASTROPHIC DEATH LOSS

1. **Contact renderer**
   a. Arrange for pickup of deads
   b. Make sure that employees & cleanup use appropriate health protections (masks, etc.)

2. **Contact your local vet**
3. **Be in contact with the State Dept. of Agriculture Bureau of Animal Health as needed. (24/7 # provided)**

IL Dept of Ag, Bureau of Animal Health 24/7 #: Phone: 217/782-4944

*Post by all facility **telephones** for reference*

EMERGENCY ACTION PLAN

Actions, Contact Names & Numbers - Manure Release or Spill

In The Event of A Spill/Release

1. **Eliminate Source of Release/Spill.**
   a. Stop the manure application or pumps
   b. Repair defective component of earthen basin/lagoon and fill with compacted clay
2. **Contain the Release/Spill**
   a. If material is in application field construct earthen berms capable of containing release/spill.
   b. If material has reached roadside ditch, creek or stream, create containment dam in ditch or stream to contain the release/spill.
   c. Construct a temporary holding basin down-gradient of release/spill. Take precautions to not damage the embankments while creating the temporary basin(s).
   d. Cap or cover all tile intakes that are within or near site of the release/spill. (Note all covers should be pre-made.)
3. **Report Release/Spill to IEPA** *(within 24 hours)* **in the following cases:**
   a. If more than 25 gallons of livestock waste are released/spilled and un-recovered, or
   b. If a release/spill of livestock waste reaches waters of the state
4. **Document Records of Release/Spill**
   a. Note the date and time of the release/spill.
   b. Note the amount of livestock waste associated with the release/spill.
   c. Note the amount of livestock waste recovered from the release/spill.
   d. In the case where the release/spill is collected and land applied, document volumes, rates and locations of land applications.
5. **Illinois Environmental Protection Agency – Illinois Emergency Management Agency:**
   24 Hr. Number: 1-800-782-7860
   24 Hr. Number: 217-782-7860

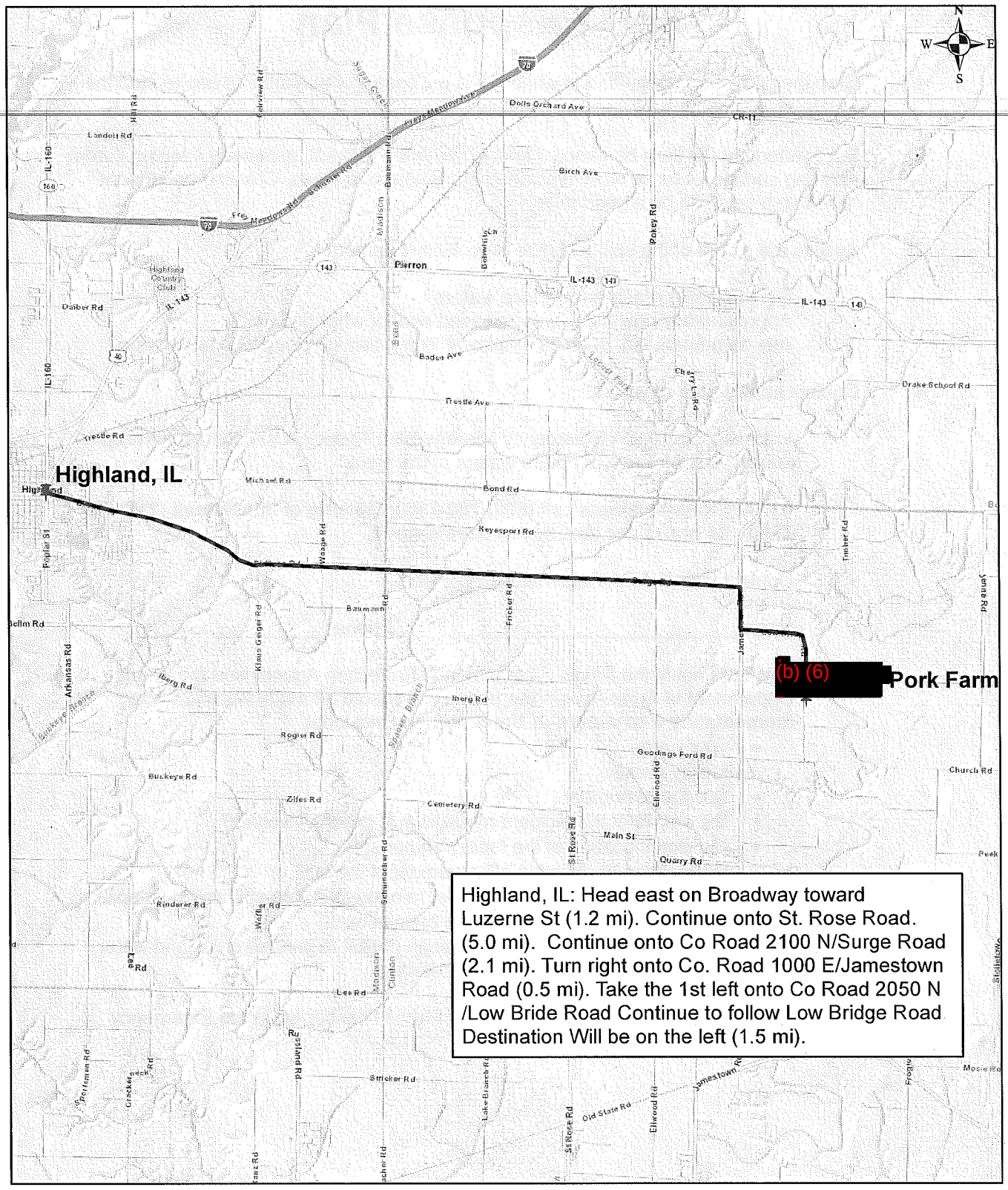
CONTRACTORS:

Earth Moving Name: _____
Phone: _____
Local Custom Applicator Name (If applicable): _____
Phone: _____
Local Custom Applicator Name (If applicable): _____
Phone: _____
Irrigation and/or Pumping Equipment Name: Hodel Inc.
Phone: 800-562-8565
Equipment Contractor Name: _____
Phone: _____
Other Name: _____
Phone: _____
Other Name: _____
Phone: _____
Other Name: _____
Phone: _____
Other Name: _____
Phone: _____
Other Name: _____
Phone: _____

*Post by all facility **telephones** for reference*

(b) (6) Pork Farm
Breese Location

Emergency Route Map



Legend

- Facility Location
- Town
- Emergency Route

9,100 Feet

Frank & West
Environmental Engineers, Inc.
7226 N. State Route 29
Springfield, IL 62707
Phone: 217/487-7080
Fax: 217/487-7647

Spill Response Plan

1) Stop the spill immediately!!! Do whatever is necessary or available to use to stop the further flow of effluent as soon as possible.

2) Major effort should then be directed to containing the effluent, especially keeping it from entering surface water or other environmentally sensitive areas. Creating an effluent "pond" in a field can be a good thing.

3) Assess the extent of the spill and note any obvious damages.

   Did the waste reach any surface waters?
   Approximately how much was released and for what duration?
   Any damage noted, such as employee injury, fish kills, or property damage?

4) Contact appropriate agencies.

   In Illinois, the Illinois Emergency Management Agency is the contact if the spill leaves your property or enters waters of the state.

   IEMA Phone in Illinois call (800) 782-7860. Outside of Illinois call (217) 782-7860 - 24 hours per day, seven days a week.

   Contact your IL EPA Regional Ag Engineer:

   Name _____ Phone _____

   IEMA will notify the Illinois Environmental Protection Agency and the Illinois Department of Agriculture. Your phone call should be made within 24 hours **(immediately if to waters of the State**) and include:

   - your name
   - facility name
   - telephone number
   - the details of the incident (realistic # of gallons involved)
   - the exact location of the facility and or spill
   - the location or direction of movement of the spill
   - weather and wind conditions (i.e. rain forecast, pre-spill and post-spill)
   - what corrective measures have been taken
   - and the seriousness of the situation (threat to surface or ground water, spill under control, need for assistance).

   For other contacts see the Emergency Phone Number list in the Emergency Action Plan.

5) **Start cleanup activities, even if state or federal agency staff has not arrived on the scene. DO NOT WAIT!!!**

- As soon as possible begin clean-up procedures
- Notify agencies and local authorities including the local county public health department and appropriate public/private water supplies.
- Attempt application of spilled wastes on cropland
- Assess environmental impact of fish kill, surface water pollution, well or groundwater impact, and amount of waste released and for what duration.

6) A written report (form optional) to the Illinois EPA confirming information provided by telephone is required within 5 days after discovery of the release. Blank report for filing written report is provided.

Send Written Reports to:
Illinois EPA Bureau of Water, Compliance Assurance Section
P.O. Box 19276 Springfield, IL 62794-9276
Send Faxes to: (217) 557-1407

All responses to emergencies should be documented and kept with the manure management plan as required in the Livestock Facilities Management Act and Illinois EPA NPDES General Permit. This documentation should include all agency and local authority contacts made during the response phase. This information can be used to assess response to the emergency, prepare for future problems, and train employees.

7) Implement procedures to prevent similar occurrences. Seek professional assistance if problem is berm or structure related.

The State of Illinois requires an owner or operator of a livestock waste handling facility to report any release of 25 gallons or more of livestock waste within 24 hours after discovery of the release into the environment. This reporting requirement includes releases from livestock waste handling facilities and releases from the transportation of livestock waste.

Releases of any quantity that enter surface waters (including releases to sinkholes, drain inlets, broken subsurface drains or other conduits to groundwater or surface water) must be reported immediately, except when immediate notification would impede the owner's or operator's efforts to correct the cause of the release or contain the livestock waste. In such cases, the report must be made as soon as possible but no later than 24 hours after discovery. In addition to the reporting requirement, the owner or operator is responsible for correcting the cause of the release as soon as possible in order to minimize environmental damage.

The reporting requirement applies to waste storage, handling facilities, piping, pumps, and transportation equipment. Reporting is not required for releases of less than 25 gallons provided no quantity is released to waters of the state or from a controlled and recovered release during field application. A release does not include the normal application of livestock waste to cropland at established agronomic rates.

Failure to report a release could result in fines of up to $1,000 for the first violation, $2,500 for a second violation, and up to $5,000 for a third or subsequent violations. Any environmental damage resulting from the release (such as a fish kill) may subject the owner or operator to additional fines and require him/her to reimburse the state for the value of the damage.

Inquiries concerning the release reporting requirements may be directed to:
Illinois EPA, Bureau of Water, Field Operations Section, (217) 782-3362.

Illinois Environmental Protection Agency
Livestock Waste Release
Required Report Information Form

Send written reports to:
Illinois EPA, Bureau of Water, Compliance Assurance Section
P.O. Box 19276, Springfield, Illinois 62794-9276

Report any release of livestock waste in Illinois by phone within 24 hours after discovery of the release. In Illinois call (800) 782-7860, outside of Illinois call (217) 782-7860. A written report (form optional) to the Illinois EPA confirming information provided by telephone is required within 5 days after discovery of the release. Attach additional pages if more space is required to answer questions.

Name of Person Reporting Release:_____ Telephone Number:_____

Release Source:_____ County:_____
(Where Release Occurred)

Date & Time Release Began:_____ Duration of the release: _____

Cause of Release:_____

Give distance and direction of the release from nearest town, village or municipality.
If possible give legal description down to quarter section.

Estimate the quantity that was released and the flow rate if the release is ongoing.

Quantity:_____Gallons Flow Rate:_____ Gallons/Day

Circle appropriate area(s) into which the release occurred: Field Ditch Stream Other
If other please describe:

Estimated Release Extent: _____ Sq. Ft _____ Sq. Yd _____ Acres

What are the apparent environmental impacts of the release?

Contact Person for Additional Information: Name:_____
Telephone number:_____

Describe any dangers to health or the environment resulting from the release.

Describe all actions taken to respond to, contain and mitigate the release.

Facility Name:_____
Mailing Address:_____
City, State, Zip:_____

Signature:_____ Date:_____

The Illinois EPA is authorized to request this information under the Environmental Protection Act, Illinois Compiled Statutes ("ILCS"), 1999, as amended, Chapter 415 ILCS Sections 5/4(b) and 5/4(h). Use of this reporting format is voluntary, as long as the information required by the Livestock Management Facilities Act, Chapter 510 ILCS Section 77/18 concerning the release is reported in a timely manner.

Facility Safety Recommendations

1. Waste storage facilities must be considered "High Hazard Areas". The biodegradation of waste forms noxious gases such as methane (CH), Hydrogen sulfide (H_2S), ammonia (NH_3) and carbon dioxide (CO_2). This can be fatal to both animals and human beings.

   HYDROGEN SULFIDE PARALYZES THE DIAPHRAGM AND THE VICTIM WILL NOT START BREATHING AGAIN WITHOUT ARTIFICIAL RESPIRATION, EVEN AFTER BEING REMOVED FROM THE NOXIOUS GASSES.

2. Some of these gases can be explosive with the proper gas to air ratio. Use caution with open flames, welding torches and arcs, electrical motors with brushes that spark (skillsaws, electric drills, shop vacs, etc.) when working near waste storage facilities. Be sure the work area is well ventilated.
3. Agitation of liquid manure can release large volumes of these noxious gases. Special care must be taken to provide adequate ventilation during agitation and emptying of the storage facility. If there is a question regarding the adequacy of ventilation, the livestock should be evacuated from the building and the operator should wear an oxygen mask.
4. Operators should avoid working alone during agitating and emptying the facility.
5. A reception pit, tank or other storage facility that has contained liquid/slurry manure should not be entered because gases may remain in the structure. When it is necessary for someone to enter one of the structures for repairs, the following precautions must be taken:
6. The reception pit shall be ventilated by the use of fans, blowers, etc.
7. There should be at least two people; one to remain on the outside and one to enter the facility.
8. The one entering the structure must have a safety line attached so that the "outside" person can pull the victim to safety without entering the facility.
9. The one entering must have an air mask, which furnishes outside air through an airline and compressor, scuba equipment with air tanks or other means of positively furnished outside air.
10. Gas masks must not be used because they operate on the principle of chemically removing unwanted gases from air so the wearer can breathe safely. In manure facilities, the air has been displaced by the noxious gases and when the gases are removed by the gas mask, the wearer will suffocate because there is no air to breathe.
11. All lids, gates, hatch covers, shields and safety grates to prevent unauthorized entry by people or livestock must be securely in place when tanks and pit openings are left unattended and must be repair immediately when damaged.
12. Never leave a ladder that stands against an above ground waste storage facility unattended.
13. All waste storage facilities must be posted with signs with the following or similar warning:

    DANGER - KEEP OUT

    THIS IS A WASTE STORAGE FACILITY AND PROLONGED EXPOSURE MAY BE HAZARDOUS TO YOUR HEALTH.

14. Inspect and repair/replace, as needed, all warning and hazard signs.

3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

3.3. Catastrophic Mortality Management

1. Contact renderer

a. Arrange for pickup of deads

b. Make sure that employees & cleanup use appropriate health protections (masks, etc.)

2. Contact your local vet

3. Be in contact with the State Dept. of Agriculture Bureau of Animal Health as needed. (24/7 # provided)

IL Dept of Ag, Bureau of Animal Health 24/7 #: Phone: 217/782-4944

3.4. Chemical Handling

This facility currently stores only industry standard chemicals and supplies. These may consist of but are not necessarily limited to disinfectants, cleaning solutions, veterinary approved medicines, small container lawn tractor fuel storage, etc. All of these items are stored inside the facility buildings. None are exposed to precipitation.

The following me measures are to be taken to ensure the proper storage and handling of facility chemicals and supplies.

- All chemicals are stored in proper containers.
- Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations.
- Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
- Chemical storage areas are within the building and behind locked doors.
- Emergency procedures and equipment, if necessary, are in place to contain and clean up chemical spills.
- Chemical handling and equipment wash areas, if necessary, are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 4. Land Treatment

No application fields are included in this CNMP all waste is sold and applied offsite by a custom applicator. Any land treatment activities are the responsibility of the land owner and/or farmer of the fields where applications take place.

Section 5. Soil and Risk Assessment Analysis

5.1. Soil Information

No application fields are included in this CNMP. Soil risk assessment analysis for application fields is the responsibility of the purchaser of the manure.

5.2. Predicted Soil Erosion

N/A

5.3. Nitrogen and Phosphorus Risk Analysis

Illinois Phosphorus Risk Assessment

(Illinois NRCS – Nutrient Management Standard, Code 590)

Phosphorus (P) loading to surface water can accelerate eutrophication. The availability of other nutrients and light penetration into the water column will also influence the response of waterbodies to phosphorus. Land managers who desire to minimize transport of phosphorus need a practical assessment procedure to assist them in making decisions concerning the applications of phosphorus-containing materials.

Factors such as: the amount of erosion and runoff; the form, amount, and distribution of Phosphorus in the soil: and fertilizer and manure application rate, timing, and placement determine P loss from agricultural fields and the resulting P loading to water resources. Most phosphorus compounds found in soils have low water solubility. Consequently, P loss from agricultural land was once thought to be primarily associated with soil erosion. In many cases, sediment-bound P is still the dominant form in which P losses from agricultural fields occur. Over the past decade, research has shown that phosphorus can be lost in runoff in dissolved forms. High dissolved P concentration in runoff is more frequently observed where soil P levels are high particularly near the soil surface. High soil P levels, however, do not automatically equate to high dissolved P in runoff. As stated earlier, numerous factors interact to create the potential for P losses from agricultural fields. Many of the basic processes that govern P transport are known. It is difficult, however, to know at any given site which factor(s) influence P loss rates proportionally more than others. Insufficient data exist in Illinois to definitively guide landowners as to which factors in a specific field contribute the most to P losses. There are indications, however, that where solution P losses from crop fields are dominant, high soil P concentration at the surface are likely the most dominant factor.

The purpose of this guide is to (1) help land managers identify factors in agricultural fields known to contribute to "P" runoff loss and, (2) identify practices that can reduce phosphorus loss from agricultural fields. The factors most commonly associated with both dissolved and sediment-bound P loss are presented. For each factor, guidance is provided to help land managers estimate the relative potential for P transport to surface water. It is important to realize that the procedure is not a predictive tool for P loading. It is merely a tool for assessing the relative potential for phosphorus transport.

Use of P Risk Assessment:

When possible, land managers should adopt management practices that minimize phosphorus loss risk factors. If phosphorus containing materials need to be applied to fields that have medium or high risk potentials, recommended management practices should be used to reduce the risk of phosphorus transport.

Practices to Reduce Phosphorus Risk Potential

Soil Erosion Control

- Use residue management and/or structural practices to reduce sheet and rill erosion
- Install filter strips, riparian forest buffers, contour buffer strips, field borders, or wetlands

Minimize Connectivity to Water Bodies

- Install water and sediment control basins to reduce quantity of sediment transported offsite
- Install conservation buffers adjacent to water resources to create nutrient application setbacks

Reduce Runoff Potential

- Terrace fields to reduce slope length
- Contour strip cropping, contour buffer strips, cover crops, crop rotations that include meadow and/or small grains, and crop residue management

Lower Soil Test Phosphorus

- Sample soils on high testing fields to determine vertical distribution of the phosphorus
- If phosphorus is concentrated in the top two inches of soil, invert the soil (e.g. moldboard plow) where soil erosion will not be a problem
- Avoid stratification by placing phosphorus materials beneath the top two inches of the soil surface

Practice Nutrient Management

- Apply no more than maintenance levels of phosphorus when soil test P reaches the levels described in the Illinois Agronomy Handbook, Chapter 11.
- When soil test P levels reach 300 lb/acre, only maintenance P levels may be applied to land.

Site Characteristic Definitions

1. **SOIL EROSION** – Sheet and rill erosion as measured by the most current version of the Revised Universal Soil Loss Equation (RUSLE).
   (Low = < T, Medium = >T, ≤ 2T, High = > 2 T)

2. **CONNECTIVITY TO WATER** – Defines the potential for P to be transferred from the site to a perennial stream or water body. The more closely connected the runoff is from the field via concentrated flow (from a defined grassed waterway or surface drain) to a perennial stream or water body the higher the potential for P transport.
   (Low = > 1,000', Medium = < 1,000', ≥ 200', High = < 200')

3. **RUNOFF CLASS** – Represents the effects of the Hydrologic Soil Group (A, B, C, D) on runoff. This factor represents the site's runoff vulnerability.
   (A = Low, B = Medium, C,D = High)

4. **SOIL "P" TEST (Bray P1 or Mehlich 3)** – Soil test procedure using the Bray P1 extraction, or other extraction test calibrated to bray P1, that provides an index of plant available P expressed in lbs. P/Acre (PPM x 2 = lbs./Acre where soil samples are obtained to the 6 2/3" depth)
   (Low = < 35 lbs/acre, Medium = 35-70 lbs/acre, High = > 70 lbs/acre)

5. **P INPUTS** – Represents the combined effect of application method and application rate on the potential for phosphorus to be transported in runoff in both dissolved and sediment-bound phases. Phosphorus application rate is expressed in terms of the University of Illinois maintenance phosphorus recommendations applicable to crops/yields grown on the site being evaluated. Phosphorus may be in the form of commercial fertilizer or organic materials such as manure, animal waste lagoon supernatant, wastewater from municipal or agricultural sources or nonagricultural biosolids such as sewage sludge or landscape waste. When using the "P Inputs Matrix", it is assumed that soil incorporation is performed prior to runoff events. Instances where incorporation is typically not performed prior to runoff events will be considered as non-incorporated surface applications.
   (See P Input Matrix Below)

P INPUT MATRIX

	Application Rate		
Application Method	**≤ UI Recommendations**	**> UI – 150% UI**	**> 150% UI**
Incorporation or injection > 3" below surface	Low	Low	Low
Shallowly incorporated surface applications < 3"	Low	Medium	High
Non-incorporated surface applications	Medium	High	High

Nitrogen Risk Assessment

(Illinois NRCS-Nutrient Management Standard, Code 590)

	Soil Texture[2]		
Application Timing & Temp[1]	**Coarse**	**Medium**	**Fine**
Fall with inhibitor > 60°F	High	High	High
Fall with inhibitor < 60°F	High	Medium	Medium
Fall w/out inhibitor > 60°F	High	High	High
Fall w/out inhibitor < 60°F	High	Medium	Medium
Spring w/out inhibitor	Medium	Medium	Medium-Low
Spring with inhibitor	Medium-Low	Low	Low
Spring split-applied or sidedress	Medium-Low	Low	Low

[1] Temperatures refer to soil temperature measured at a depth of 4 inches. For this assessment, inhibitors refer to nitrification inhibitors

[2] Soil Texture: **Coarse: sand, loamy sand, sandy loam**
Medium: silt, silt loam, loam
Fine: silty clay loam, silty clay, clay, clay loam, sandy clay, loam, sandy clay

Section 6. Nutrient Management

6.1. Field Information

No application fields are included in the CNMP all waste is sold and transferred offsite by a custom applicator. It is the purchaser's responsibility to make sure applications are made at agronomic rates. The farm will provide purchaser of manure a copy of the manure analysis.

6.2. Manure Application Setback Distances

Setback Requirements: NRCS standard

Feature	Setback Criteria	Setback Distance (Feet)
Wells	All applications	200
Sinkholes	All applications	200
Surface waters	All applications	200

Source: Waste Utilization Standard 633 (http://efotg.nrcs.usda.gov/references/public/IL/633.pdf)

Setback Requirements: CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Subsurface drainage intakes	Manure applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural drainage wells	Manure applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Manure applied upgradient, no permanent or insufficient vegetated setback	200
Waterways or other conduits to surface waters	Manure applied upgradient, no permanent or insufficient vegetated setback	200
Potable water supply wells	All applications	150
Residence, not part of the facility	Injected manure or incorporated within 24 hours	0
Residence, not part of the facility	Surface applied or incorporation after day of application	1320

Source: NPDES Permit No. ILA01 (http://www.epa.state.il.us/public-notices/2003/cafo-general-permit/npdes-general-permit.pdf)

Setback Requirements: LMFA

Feature	Setback Criteria	Setback Distance (Feet)
Residence, not part of the facility	Injected manure or incorporated within 24 hours	0
Residence, not part of the facility	Surface applied or incorporation after day of application	1320
Surface water	Manure applied up-gradient of surface waters	200
Potable water supply wells	All applications	150

Source: Illinois Consolidated Code - Livestock Facilities Act (http://www.ilga.gov/legislation/ilcs/ilcs2.asp?ChapterID=41)

6.3. Soil Test Data

Soil Testing Procedures

Soil samples for soil tests should not represent more than 2.5 acres per sample and should be done at least every 3-4 years. Any field not sampled at 2.5 acre frequency should be re-sampled at 2.5 acres grids on the next scheduled soil testing cycle.

Soil sampling depth for P and K shall be 7 inches. Under no-till conditions pH can be tested using the top 4 inches only.

Soil samples shall be collected and prepared according to The Illinois Agronomy Handbook. Soil samples should be taken prior to manure or fertilizer applications. Since manure will typically be applied to soybean stubble during the fall previous to planting corn in the spring, soil tests should be taken in soybean stubble prior to manure application. Wait 9 months after manure or fertilizer applications before soil testing so that unabsorbed nutrients do not affect the results.

The minimum soil analysis for CNMP's should include the following parameters:

- *soil pH,*
- *phosphorus (P as indicated by Bray P1 test)*
- *potassium, (K)*

In addition, Cation Exchange Capacity (CEC), and soil organic matter should be tested to help determine liming and fertilizer recommendations. Soil testing should include analysis for any nutrients for which specific information is needed to develop the nutrient plan.

6.4. Manure Nutrient Analysis

Manure Sampling

- **Collecting the Sample**

  When collecting a manure sample from a storage facility, the most important thing to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g., a holding pond and a drystack) each unit should be sampled separately (e.g., the producer will need to collect two samples, one to represent each manure type, liquid sample, and a solid sample).

  Manure tests for liquid manure should be taken every time manure is removed from each type of storage until average nutrient values can be determined.

  Manure Tests for solid manure should be taken before each major spreading time such as spring and fall until average nutrient values can be determined.

- **Pit Storage Structures (Below Building)**
  Above Ground Storage Structures (Slurrystore)
  Manure samples can be samples prior to applications, after the structure has been agitated to assure a homogenous sample. If agitation cannot be performed, because of gas production and animal welfare, a sample can be obtained from the application equipment or the outlet line on the pump. Three to six samples should be collected from different loads and mixed together to form one composite sample. If it is not possible to collect a sample from the previous two methods, samples should be collected directly from the structure. A sample should be collected at the top, middle, and bottom of the land application event. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottle works well. Consult with the lab directly for specific instructions.

- **Drystacks**
  The sample sent to the lab from a drystack should be a composite of several sub-samples. Sub-samples should be obtained from about 10 locations within the drystack. The sample locations should vary by depth (from 1 ft. deep to 3 inches from the bottom) and by position (from the front, back, and sides). After collecting the sub-samples, the material should be mixed in one container to make a homogeneous composite sample. The composite sample sent to the lab should be about one pint. It should be sent in a well-sealed container. Sealable plastic bags work well for relatively dry material, wide mouthed plastic bottles are better for wetter material.

- **Earthen Storages/Holding Ponds**
  Storages should be sampled immediately before or during land application. The condition of the storage during sample collection should reflect the condition of the storage during land application. If the storage is agitated during land application and is well mixed, one sample will be representative of the entire facility. The agitation time required for the storage facility to become well mixed is dependent on its size and shape and the agitation equipment. Small facilities are usually well agitated after one to two hours. If the facility is not agitated during land application, it will not be well mixed. In this case three samples should be collected; a sample should be collected at the

beginning, middle, and end of the land application event. Storage facility samples can be collected from the storage itself, the outlet line on the pump or from the application equipment. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottled works well. Consult with the lab directly for specific instructions.

- **Lagoons**
  Anaerobic lagoons should be sampled immediately before or during land application. The condition of the lagoon during sample collection should reflect the condition of the lagoon during land application. A minimum of three samples should be collected; a sample should be collected at the beginning, middle, and end of the land application event. Lagoon samples can be collected from the lagoon itself, the outlet line on the pump or from the application equipment. A one-pint sample is usually sufficient to be sent to the lab, provided that it is in well-sealed container. A wide mouthed plastic bottle works well. Consult with the lab directly for specific instructions.

- **Sample Transfer**
  The sample should be mailed or delivered to the lab the day of collection to reduce sample degradation with time. Do not send samples that will not be delivered within one to two business days. For example, do not send on a Thursday and allow it to set in the post office or mail box during a weekend. The sample should be analyzed for total nitrogen, ammonia nitrogen, phosphorus, potassium and total solids. Contact the lab prior to sending in a sample to receive a sample analysis form to mail in with your sample.

Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
Liquid Manure		32.0	24.0	22.0	20.0	22.0	20.0	Lb/1000Gal	MWPS 18 Section 1, 2nd Ed., Table 7

(1) Entered analysis may be the average of several individual analyses.
(2) Illinois assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Illinois, see Illinois Administrative Code, Livestock Management Facility Regulations, sections 900.806, 900.808 (http://www.ilga.gov/commission/jcar/admincode/008/00800900sections.html).

6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Liquid Manure	Oct '12 - Sep '13	4,000,000	2,593,615	0	0	0	1,800,000	0	4,793,615	Gal
Liquid Manure	Oct '13 - Sep '14	4,793,615	2,593,615	0	0	0	2,500,000	0	4,887,230	Gal
Liquid Manure	Oct '14 - Sep '15	4,887,230	2,593,615	0	0	0	2,500,000	0	4,980,845	Gal
Liquid Manure	Oct '15 - Sep '16	4,980,845	2,593,615	0	0	0	2,500,000	0	5,074,460	Gal
Liquid Manure	Oct '16 - Sep '17	5,074,460	2,593,615	0	0	0	2,500,000	0	5,168,075	Gal

6.11. Plan Nutrient Balance

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Total Manure Nutrients on Hand at Start of Plan[1]	128,000	88,000	80,000
Total Manure Nutrients Collected[2]	414,978	285,298	259,362
Total Manure Nutrients Imported[3]	0	0	0
Total Manure Nutrients Exported[4]	377,600	259,600	236,000
Total Manure Nutrients Gained/Lost in Transfer[5]	0	0	0
Total Manure Nutrients on Hand at End of Plan[6]	165,378	113,698	103,362
Total Manure Nutrients Applied[7]	0	0	0
Available Manure Nutrients Applied (Utilized by plan's crops)[8]	0	0	0
Available Manure Nutrients Applied (Not utilized by plan's crops)[9]	0	0	0
Commercial Fertilizer Nutrients Applied (Utilized by plan's crops)[10]	0	0	0
Commercial Fertilizer Nutrients Applied (Not utilized by plan's crops)[11]	0	0	0
Available Nutrients Applied (Manure and fertilizer; utilized by plan's crops)[12]	0	0	0
Nutrient Utilization Potential[13]	0	0	0
Nutrient Balance of Spreadable Acres[14]*	0	0	0
Average Nutrient Balance per Spreadable Acre per Year[15]*	0	0	0

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate changes in total manure nutrients due to internal transfers between storage units with differing analyses.
6. Values indicate total manure nutrients present in storage(s) at the end of plan.
7. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
8. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 7) after accounting for state-specific nutrient losses due to rate, time and method of application. Nutrients which will not be utilized by crops in the plan (row 9) are excluded from these values.
9. Values indicate manure nutrients applied that will be utilized by crops outside the plan.
10. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water. Nutrients that will not be utilized by crops in the plan (row 11) are excluded from these values.
11. Values indicate nutrients applied as commercial fertilizer which will be utilized by crops outside the plan.
12. Values are the sum of available manure nutrients applied (row 8) and commercial fertilizer nutrients applied (row 10).
13. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
14. Values indicate available nutrients applied (row 12) minus crop nutrient utilization potential (row 13). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
15. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 14) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates.

Section 7. Feed Management

This Section intentionally left blank. Producer uses a nutrition expert for feed management.

Section 8. Other Utilization Options

This section intentionally left blank, no other utilization options were discussed.

Section 9. Recordkeeping Forms

9.1. Producer Activity Checklist

Calendar Year _____

Activity	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec
Soil Sampling												
Date / Initials												
Manure Sampling												
Date / Initials												
Spreader or Equipment Calibration												
Date / Initials												
Record Manure Volume Storage:	X	X	X	X	X	X	X	X	X	X	X	X
Volume / Initials												
Record Manure Volume Storage:												
Volume / Initials												
Record Manure Volume Storage:												
Volume / Initials												
Manure Storage Facility Inspection												
Date / Initials												
Manure Pumping Equipment Inspection												
Date / Initials												
Recordkeeping (see forms on following pages)	X	X	X	X	X	X	X	X	X	X	X	X

Notes: An X indicates that the indicated activity is scheduled for that month. Duplicate this form as needed for additional years.

Inspection/Monitoring Records

Date	Activity Description	Operator/ Inspector	Activity Data

Crop Records

Field	Crop	Planting Date	Hybrid or Variety	Pop-ulation Planted	Crop Residue (%) (1)	Tillage and Dates	Harvest Date	Yield/ Acre

(1) Percent residue cover left after planting

Manure Application Records

App. #	Field	Date	Manure Source	Equipment	Days to Incorp.	Rate/A Gal or Ton	Loads	Total Applied Gal or Ton	Acres Cov.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

App. #	Hauler's Name (1)	Ground Cover % (2)	Soil Condition (3)	Air Temp. (4)	Wind Speed (5)	Wind Dir. (6)	Weath-er (7)	Rain Before (8)	Rain After (9)	Notes/Comments
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										

(1) Name or initials of the person who applied the manure.
(2) Percent residue or ground cover at time of application.
(3) Soil condition at time of application: Dry, Firm, Wet, Muddy, Snow-Covered, Frozen.
(4) Air temperature at time of application.
(5) Wind speed at time of application: Calm (0-2 mph), Light (2-5 mph), Breezy (5-15 mph), Windy (>15 mph).
(6) Wind direction at time of application: N, NE, E, SE, S, SW, W, NW.
(7) Weather condition at time of application: Sunny, Partly Cloudy, Cloudy, Rain, Snow.
(8) Amount of rainfall during the 24 hours prior to application.
(9) Amount of rainfall during the 24 hours after application.

Commercial Fertilizer and Irrigation Water Application Records

Field	Date	Analysis (1)	Form Dry or Liquid	Application Method	Material Rate/A Lbs or Gal	Total Applied Lbs or Gal	Acres Cov.	Notes/Comments

(1) With commercial fertilizers, enter the analysis in the form of N-P_2O_5-K_2O (examples: anhydrous ammonia is 82-0-0, diammonium phosphate is 18-46-0). With irrigation water, enter the nitrate concentration in ppm.

Manure Exports off the Farm

Manure Source	Date	Amount Gal or Ton	Receiving Operation	Address	Contact	Phone

Manure Analysis Records

Manure Type	Location of Sample	Manure Analysis							Taken By	Phone
		Date	Sample Number	TKN	NH4	P2O5	K2O	% Solids		

Manure Imports onto the Farm

Manure's Animal Type and Form	Date Manure Received	Manure Analysis				Amount Gal or Ton	Originating Operation	Address	Contact	Phone
		TKN	NH4	P2O5	K2O					

Internal Transfers of Manure

Manure Source	Date	Amount Gal or Ton	Manure Destination	Purpose of Transfer

Manure Storage Pumping Levels Log

Manure Storage:_____

Date	Recorded by (name)	Level before Pumping	Level after Pumping	Substantial manure additions occurred during this pumping period (Y/N)

Manure Storage Facility Inspection Log

Facility	Date	Inspected By	Action Needed	Action Taken

Manure Handling Equipment Inspection Log

Equipment	Date	Inspected By	Action Needed	Action Taken

Water Supply Inspection Log

Location	Date	Inspected By	Action Needed	Action Taken

Mortality Disposal-Record Sheet

Date	Number of Head	Average Weight	Method of Disposal	Total lbs of Mortality

Mortality Disposal-Record Summary Table

Method of Disposal:_____

Month	Number of Head	Average Weight	Total
Total			

Rainfall Records

Date	Recorded By	Location	Volume

Manure Equipment Calibration

Equipment	Date	Method Used	Calibration Rate	Comments

Waste Storage Facility Freeboard Levels

Waste Storage	Date	Lagoon Height or Ft. of Freeboard	Comments	Action Needed and Taken

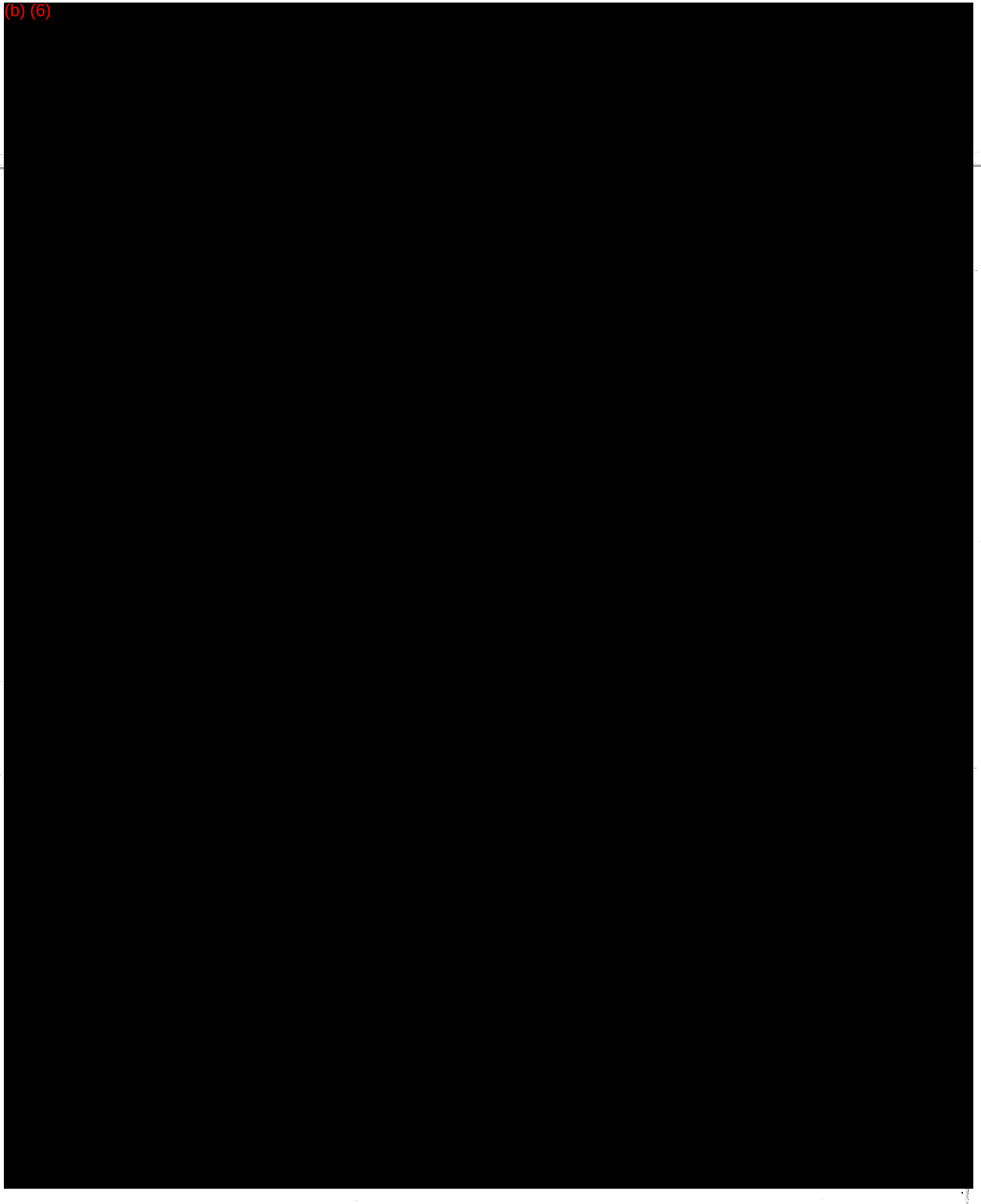
Stormwater Inspection Log

Location	Date	Inspection by (name)	Action Needed	Action Taken

Off-Site Manure Applications

Year:

Recipient	Date	Time	Rate (gal/ac OR t/ac)	Total (gal or t)	Source	App Method	Weather Conditions (Wind, Temp)	Soil Moisture (Dry, Normal)


(b) (6)

Section 10. References

10.1. Publications

Waste volume calculations

NRCS Animal Waste Management Field Handbook

Manure Application Setback Features/Distances

Waste Utilization Standard 633
http://efotg.nrcs.usda.gov/references/public/IL/633.pdf

Manure Nutrient Availability

Illinois Administrative Code, Livestock Management Facility Regulations, sections 900.806, 900.808
http://www.ilga.gov/commission/jcar/admincode/008/00800900sections.html

Phosphorus Assessment

Illinois NRCS 633 Standard (Manure Utilization), Appendix A, January 2002
http://efotg.nrcs.usda.gov/references/public/IL/633.pdf

Practice Standards

Illinois NRCS Nutrient Management Standard (590), January 2002
http://efotg.nrcs.usda.gov/references/public/IL/590.pdf

10.2. Software and Data Sources

MMP Version	n/a
MMP Plan File	n/a
MMP Initialization File for Illinois	n/a
MMP Soils File for Illinois	n/a
Phosphorus Assessment Tool	2009.07.28
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	n/a
RUSLE2 Database	n/a